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A British Medical Association Lecture

ON

SOME MODERN ASPECTS OF NEPHRITIS.

DELIVERED BEFORE THE SWANSEA DIVISION, DECEMBER, 1928,

BY

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THE centenary celebration last year of the publication of Richard Bright's discovery caused his work to be re-examined with greater care. As with Darwin, so with Bright, a study of their own writings makes us realize how much more cautiously they expressed their conclusions than their followers have done. The disciple always tends to be more Royalist than the King. Aschoff says: "Bright himself, with characteristic caution, discussed the question of the extent to which all the symptoms described by him should be referred to primary disease of the kidneys or to primary lesions of other organs. It is, therefore, better to speak of *symptoms of Bright's disease in disorders of the kidneys* and not of Bright's disease of the kidney." He suggests limiting symptoms to the combination of toxic and inflammatory albuminuria with so-called renal oedema. This would exclude some forms of nephritis, such as granular kidney.

In general, nephritis is due to some toxic cause. I do not believe that mere exposure to cold causes nephritis in a healthy kidney, though it may exacerbate a chronic lesion which is already present. In the great war the epidemic of nephritis did not occur during the first winter when men were much exposed and badly housed; it occurred during the early spring of 1915, and there was no relationship between low temperature and the incidence of nephritis. It was then suggested that a great range of temperature was an exciting cause, but in the Boer war, when I saw the mirage at 2 o'clock in the afternoon and hoar frost at 6.30 on the veldt near Bloemfontein, cases of acute nephritis were almost unknown. On the other hand, in subsequent winters in the great war there was some agreement between low temperature and the onset of acute nephritis, because by that time there were a considerable number of men in the field whose kidneys had previously been somewhat damaged.

Adolescent albuminuria does not predispose to nephritis; MacLean tested the urine of 50,000 men in training camps and found that there was no relationship between the cases of albuminuria thus discovered and the onset of subsequent nephritis. The majority of men suffering from nephritis were free from albuminuria until a comparatively short time before symptoms of nephritis set in. We must remember, however, that some of the milder forms of toxaemic kidney may simulate adolescent albuminuria, so that a careful search should be made for toxic foci in those believed to be suffering merely from this condition—for example, in the tonsils, or the appendix, or tuberculous glands.

If the kidney is overwhelmed by a toxin there is a sheer necrosis affecting the convoluted tubules most, the loops of Henle less, and the glomeruli not at all. This is the "toxaemic kidney," where the kidney does not retain what it should excrete, but excretes what it should retain. If the toxic process is rather less severe typical acute nephritis results, in which the glomeruli share. If it is much less severe a chronic nephritis follows in which the interstitial tissues suffer more than the tubules. Geoffrey Evans has shown that even in chronic interstitial nephritis there is an inflammatory reaction. In general terms, then, the intenser the infection, the more the secreting epithelium suffers; the more chronic it is, the more the vessels suffer, and as the glomeruli are vascular tufts, they are specially involved.

Generally speaking, the toxins reach the kidney by *the blood stream*; if in addition to the toxin the actual infecting organisms, as in the multiple emboli of infective endocarditis, are carried to the kidney, a number of foci of small-celled infiltration result, each of which starts an island of nephritis, constituting focal embolic nephritis.

Sometimes, especially after tonsillitis, boils, carbuncles, and staphylococcic infections generally, it is the perinephric tissue which is first involved—a metastatic inflammation which spreads via *the lymphatics* into the kidney. This is the type of nephritis in which pain in the back is most common. Again, the infection may spread upwards from the lower urinary tract—ascending nephritis—though here too, as Kenneth Walker pointed out, it is mainly, if not exclusively, through the lymphatics of the ureter that the infection reaches the kidney.

I shall adopt the following classification of nephritis, slightly modified from Aschoff.

1. DEGENERATIVE GROUP.
   - (A) Acute. **Toxaemic Kidney*—such as that produced by drugs (for example, corrosive sublimate and carbolic acid) or by the toxaemias of pregnancy.
   - (B) Chronic. *Amyloid Kidney.*
2. INFLAMMATORY GROUP.
   - (A) *Glomerulo-tubular.*
     1. *Acute—ordinary acute nephritis.
     2. *Subacute—chronic parenchymatous nephritis; large white kidney.
     3. Chronic—chronic mixed nephritis or contracting kidney.

     It must be recognized that these may either follow one another in this order, or 2 and 3 may apparently arise independently of 1.
   - (B) *Focal Emboli Nephritis*—as seen in infective endocarditis, when the nephritis is set up by multiple emboli from the heart valves.
   - (C) *Chronic Interstitial Nephritis*—the small red or granular kidney.
3. VASCULAR GROUP.
   - (A) *Hyperpietic.*
   - (B) *Senile or Atheromatous.*

Only the starred members of this list really accord with the definition of disorders of the kidney with the symptoms of Bright's disease.

To my mind the position has only been made more difficult and obscured by Volhard's introduction of the term "nephrosis," which has by some writers been so extended as to include chronic parenchymatous nephritis. I consider this term should be limited to toxaemic kidney in which there are merely degenerative changes in the tubules without any inflammatory reaction. There is marked oedema, excess of cholesterol in the blood, and massive albuminuria, but there are no cardio-vascular changes or casts. The urea of the blood remains normal, as does the globulin, but its albumin content falls as the disease progresses. Nephrosis is part of a general toxaemia, and some observers claim that when it is experimentally produced the first protein to appear in the urine may be hepatic in origin. At the necropsy a large amount of cholesterol may be found in the kidney tubules, the so-called "myelin" kidneys. Death or complete recovery is the rule, but occasionally a toxaemic kidney may lead to chronic nephritis.

Of late the tendency has been towards a secretory rather than an anatomical classification. This is really an advantage since the anatomical basis can only be established after death, when the opportunity for treatment is past.

Broadly speaking, the kidney may excrete two classes of substances: (1) those which can be of use to the body—water, salt, sugar, bile, haemoglobin; (2) those which are purely waste products—urea and allied nitrogenous substances. Against the excretion of the first group the kidney presents a threshold; it does not attempt to excrete them until their concentration in the blood reaches a certain height, for it would not do for such substances to be drained out of the body. For the second group no such barrier is needed. The secretory classification is as follows:

1. *Hydraemic Nephritis* (which broadly corresponds to chronic parenchymatous nephritis).—Here the excretion of Class 1 is involved, particularly of water and salt. The output of urea may be normal, and there will not be any retention of it in the blood. Not so with chlorides, the content of which in the blood will be raised. Oedema may be very marked, but there will be little evidence of cardio-vascular change.

2. *Azotaemic Nephritis.*—Here there is gross failure of the concentrating power of the kidney, and since the great

work of the kidney in concentration is in relation to nitrogenous waste products, and as urea is the most abundant of these, we find not only a fall of urea in the urine, but a rise of it in the blood. There is a rise from the normal 20 to 40 mg. per cent. to 80, 100, or much more in severe cases. The cardio-vascular changes tend to be very marked.

3. *Mixed Types.*—As interstitial changes, which are chiefly associated with azotaemia, proceed more slowly than the parenchymatous, which are chiefly associated with hydraemia, the former gradually alter the picture. A chronic parenchymatous nephritic either dies of intercurrent infections or passes into the contracted stage with interstitial changes; the oedema subsides, the blood pressure goes up, and the heart hypertrophies. Both sodium chloride and urea are retained in the blood. If there is both nitrogenous retention and renal oedema the case must be a mixed one.

I shall next consider some clinical features and the treatment of three leading types of nephritis—the acute, the hydraemic, and the azotaemic.

Acute Nephritis.

It is important to treat the cause of acute nephritis as soon as possible. The principal causes are:

1. *Acute Specific Fevers, such as Scarlet Fever.*—Recent observations show the great value of the administration of alkalis in scarlet fever as a prophylactic measure against the complication of acute nephritis.

2. *Diseases of the Respiratory Tract.*—This applies particularly to the upper respiratory tract, especially the tonsils. I recently had a case of acute haemorrhagic nephritis associated with an infected antrum, drainage of which was followed by rapid improvement. But Sir Thomas Horder has also called attention to the importance of extended sepsis as well as of focal sepsis. Thus a widespread infection of the bronchial tubes can lead to troubles similar to those due to a small collection of pent-up pus. This is particularly well seen in hyperpiesis and nephritis.

3. *Diseases of the Skin.*—Since the skin is a part of the excretory apparatus the association between diseases of the skin and of the kidney is not surprising. Extensive burns are well known to cause acute nephritis, though here extended sepsis is probably the chief factor. I have recently had two cases of scabies causing a staphylococcal infection of the skin, which were followed by acute nephritis. Here ultra-violet rays helped to clear up the skin very quickly, and the nephritis rapidly improved when this was achieved.

4. *Purpura.*—Here presumably the purpura and the acute nephritis are both consequences of a common cause, but it is not infrequent for the nephritis to occur later than the purpura.

5. *Epidemic Type.*—This is the type encountered during the war, of which I have written elsewhere. It is sufficient here to point out that dyspnoea was an early symptom, and that Shaw Dunn found multiple thromboses in the lungs. So perhaps this is really a special instance of (2), though presumably due to some unknown specific infection. According to Aschoff the renal lesion is a pure glomerulitis.

In the treatment of acute nephritis I am strongly of opinion that the conventional milk diet is a mistake in the earliest stages. Far better results accrue from von Noorden's plan of giving nothing but fruit, fruit juice, sugar, and water. If there is much hunger I generally allow toffee as well. The question of diuretics will be dealt with under hydraemic nephritis. Later on, milk can be given and the conventional treatment followed. Sufficient alkalis to render the urine alkaline seems a wise measure, and it is well to keep the patient in bed until the centrifugalized urine shows no red blood corpuscles on microscopic examination.

Hydraemic Nephritis.

There has been much controversy as to the cause of the dropsy which is the outstanding feature of this type. Widal attributed it to the retention of sodium chloride, but the results of a salt-free diet have been disappointing. Moreover, as Izod Bennett points out, "the same kidneys which at first secreted a urine poor in chlorides will, a week later, when oedema is subsiding, secrete a urine containing abundant chlorides." In other words, if water is retained, salt must also be retained. But I do not agree with Bennett when he says that an increase in the blood chlorides has never been demonstrated in this condition. Thus, in a recent case of mine, the blood chlorides were 580 mg. per cent., as against the normal 360 mg., and the urinary chlorides 150 mg. per cent., instead of 500 mg. I think that while retention of chlorides has been overstressed in the past it may be a factor in renal oedema.

Epstein's explanation of renal oedema involves two main factors: (*a*) there is a serious drainage of blood proteins into the urine, which may mean that as much as 10 per cent. of these proteins are lost daily. In this way there is a fall in the osmotic pressure of the blood, with consequent retention of water in the tissues. Subsequent investigations on the osmotic pressure of proteins have supported this conclusion. (*b*) In hydraemic nephritis the lipoids, especially cholesterol, accumulate in the blood and tissue fluids, which he believes increases the tendency to oedema.

A recent case of mine showed a cholesterol content of 390 mg., falling to 250 mg. as the oedema subsided, whereas the normal lies between 100 and 190 mg. Bright himself called attention to the milkiness of the plasma and body fluids in nephritis with dropsy, and J. Maxwell has recently devoted attention to the subject. He showed that the cholesterol of the plasma is almost invariably increased in every type of renal oedema, and though not necessarily proportional to the amount of oedema its presence in increased amounts is prognostic of a chronic course. He did not think, however, that the cholesterolaemia and the oedema were related as cause and effect, but rather that both are the results of some toxic action on the tissues.

Epstein advised a high protein diet and very little fat in such cases. It is true that a high protein diet may sometimes greatly reduce oedema in hydraemic nephritis, but in part this is due to urea, the natural diuretic, which must be formed in large amounts from the amino-acids into which that protein excess disintegrates during digestion and before it is absorbed.

In passing, why forbid eggs in albuminuria, as is so often done? Now that we know how completely protein is disintegrated before it is absorbed, how can it "run through" from the bowel to the kidney? D'Arcy Power's experiments on himself are often quoted apart from the context in justification of this restriction. It is true that he observed albuminuria in himself on three occasions after he had taken a large number of eggs, but it is also true that each of these occasions was after rowing a course. Now Collier found albuminuria in each member of the Oxford crew of 1906 after rowing a course, and strenuous exertion is now well known to produce a temporary albuminuria. But it was not known to do so at the time of those experiments. Again, raw eggs may cause a slight toxic albuminuria in those sensitive to them, but this does not occur after cooked eggs. I have deliberately added eggs to the diet of patients with hydraemic nephritis, and have found no increase in the albuminuria produced thereby.

It naturally follows that the high protein diet is only applicable when it is certain that there is no urea retention. Mere estimation of the percentage of urea in the urine seems to me to be of little value, since so much of the urea is exogenous, coming directly from the disintegration of food proteins. Many patients with nephritis are already on a low nitrogenous diet, which will necessarily lower the percentage of urea in the urine. MacLean's urea concentration test is, however, of considerable value, since it shows whether, given a definite amount of urea to deal with, the kidney is capable of doing adequate work. I have often found that though the blood urea is normal, the urea concentration test gives too low a figure. This presumably means that the kidney can only just get along on its low protein diet, and that urea retention is just beginning. Such cases are not suitable for Epstein's treatment. There seems little justification for his embargo on fats, since it is only cholesterol that is concerned, and that probably not in causal relationship. Moreover, Epstein is not consistent in this, since he allows eggs, which contain cholesterol in fair amount.

It would appear, then, that Epstein's method is only of limited application to cases of hydraemic nephritis

proved to be free from nitrogen retention. Then a high protein diet may help to make good the excessive protein loss, while diuresis may be assisted by giving urea as such in doses of 40 to 60 grains three times a day. It is entirely non-toxic. Some thirty years ago it was given in large doses in tuberculosis. I doubt if it ever did any good for that disease, but it certainly did no harm, so that one need feel no scruples about using it in the type of case here described.

This brings me to the subject of diuretics in nephritis. They may act—

1. *By producing vaso-dilatation in the kidney.* The caffeine group act in this way. They probably act as direct stimulants to the renal epithelium, the vascular change being secondary.

2. *By increasing the cardiac efficiency.* The digitalis group apparently act as diuretics in this way.

3. *By increasing the quantity of circulating fluid:* (*a*) by absorption of water from the intestines, as by giving the patient large quantities of water to drink; (*b*) by increasing the osmotic pressure of the blood. The saline diuretics and urea itself act in this way, attracting water from the tissues into the blood stream.

How far are these methods applicable to hydraemic nephritis? The first breaks the physiological law of resting damaged structures; I believe all the stimulating diuretics are capable of doing harm in this disease. The second is presumably only helpful when there is cardiac insufficiency as well. The third can do no harm, and may do good.

A study of the etiology of renal oedema leaves us with the impression that it is "at once suggestive of pathological changes in tissues other than the kidney" (Bennett). This is the idea underlying the use of novasurol and euphyllin as diuretics in nephritis, since they are believed to act on the tissues, enabling them to give up the water they are retaining. It is necessary to raise the hydrogen-ion concentration of the blood first by giving 1 to 2 drachms of ammonium chloride on each of two days, and then on the third day injecting 1/2 to 1 c.cm. of novasurol intramuscularly. Both parts of this treatment are usually repeated after a few days' interval. Some give larger doses of ammonium chloride and over a longer period. This plan may be adopted in obstinate cases, but it often fails. In acute nephritis I believe that 3 (*b*) is the only method that should be tried unless there is cardiac insufficiency as well, in which case digitalis may also be given.

Elimination by the skin as an alternative route of exertion has long been a common practice in nephritis. It is open to the following objections.

(*a*) Only 3 grams of nitrogen can be got rid of through the skin in the day, compared with 8 grams which can be more easily eliminated by the bowel.

(*b*) Physiological rest for the kidney is not secured by giving it a highly concentrated urine to deal with.

(*c*) Diaphoresis is an exhausting process, and may depress the heart.

(*d*) The withdrawal of so much fluid without a corresponding removal of organic solids must increase the concentration of the toxins in the circulation.

It has been argued in support of this method of treatment that after a hot-air bath the patient may be actually covered with small crystals. These are, however, chiefly crystals of sodium chloride, though there may be some urea as well. Herein we have a clue to the type of case in which diaphoresis will be of service—namely, the one when there is salt retention as a factor in the oedema, as explained above. The elimination of salt may then be of indirect service by breaking a vicious circle. In cases of this sort I have actually seen diaphoresis followed by diuresis, which can only be explained in this way. I conclude that the hot-air bath is only suitable when dropsy is actually present. Another indication that the treatment is having a good effect is the occurrence of sweating at a lower temperature than the one originally required to evoke it.

Decapsulation was revived a few years ago as a method of treatment in chronic parenchymatous nephritis by Sir Thomas Horder. It had previously been advocated chiefly for chronic interstitial nephritis, and finally abandoned for this condition. In cases of parenchymatous nephritis the following have been considered to be indications for this procedure.

(1) Persistence of the oedema for three months in spite of careful medical treatment.
(2) Absence of urea retention.
(3) Absence of cardio-vascular changes.

But even when all these indications are fulfilled the results are often unsatisfactory, and I cannot recommend this operation.

Azotaemic Nephritis.

When there is reason to believe that nitrogen retention is occurring the interpolation of two days of von Noorden's fruit juice and sugar diet, as mentioned under acute nephritis, may be of great benefit. I look upon this plan as comparable in value with the vegetable and egg diet in the treatment of diabetes in the pre-insulin days. After this a diet containing a restricted amount of protein should be given, and one which contains as little extractives as possible, since these give work to the kidney without providing a corresponding amount of nourishment. It is possible for an adult to maintain nitrogenous equilibrium on 1 gram per kilogram of body weight, and for a time less than this will suffice if there is nitrogen retention. This means that a man of 10 st. requires 66 grams of protein. During the epidemic of war nephritis I drew up the following two diets, the low nitrogen diet being given for the first week and the moderate nitrogen diet for the second and subsequent weeks as required. I am indebted to Miss Abrahams, dietitian to St. Bartholomew's Hospital, for recalculating these diets for me.

1. *Low Nitrogen Diet.*

Breakfast.—Milk 4 oz., porridge 8 oz., bread 2 oz., butter 1/4 oz. Fluids: Coffee 10 oz., milk 2½ oz.

Lunch.—Bread 3 oz., butter 1/2 oz., lettuce or tomato 1½ oz. Fluids: Milk 5 oz., barley water 10 oz.

Dinner.—Potato 4 oz., greens 5 oz., butter 1/4 oz., stewed fruit 4 oz., boiled rice 4 oz. Fluids: Lemonade, imperial drink, or barley water 12 oz.

Tea.—Bread 3 oz., butter 1/2 oz., lettuce or tomato 1½ oz. Fluids: Weak tea 10 oz., milk 2½ oz.

Supper.—Potato 4 oz., butter 1/4 oz., greens 5 oz., stewed fruit 4 oz. Fluids: Lemonade or barley water 12 oz.

This diet contains: Protein 49 grams; carbohydrate 358 grams; fat 35 grams. Calorie value, 1,992.

2. *Moderate Nitrogen Diet.*

Breakfast.—Egg 1 oz., bread 2 oz., butter 1/4 oz. Fluids as in No. 1 diet.

Lunch.—Bread 4 oz., butter 1/2 oz., tomato or lettuce 1 oz. Fluids as in No. 1 diet.

Dinner.—Mutton or fish 3 oz., bread (alternate days) 2 oz., butter 1/4 oz., stewed fruit 4 oz. Fluids as in No. 1 diet.

Tea.—Bread 4 oz., butter 1/2 oz., tomato or lettuce 1 oz. Fluids as in No. 1 diet.

Supper.—Greens 2 oz., potato 3 oz., bread 4 oz., butter 1/2 oz., stewed fruit 4 oz. Fluid: Milk 5 oz.

This diet contains (on average): Protein 63 grams; carbohydrate 407 grams; fat 91 grams. Calorie value 2,772.

These diets have proved suitable in the experience of other observers also. Alcohol is certainly undesirable in azotaemic nephritis.

It is generally recognized now that there are decided dangers in lowering the raised blood pressure in azotaemic nephritis by means of vaso-dilators. The rise of blood pressure is compensatory and should only be treated by such methods as help in eliminating the toxins whose action is forcing the pressure up. For this purpose I find the internal administration of tincture of iodine as useful as anything. Sometimes a small dose, say 1/2 grain, of thyroid extract twice a day will help this. Gentle exercise in the open air will also assist in the physiological lowering of blood pressure.

The necessity for a raised blood pressure in this type is illustrated by the case of a man admitted under my care with chronic interstitial nephritis and much dyspnoea. His blood pressure was 160 mm. systolic and 100 diastolic. On 15 minims of tincture of digitalis three times a day his blood pressure rose to 200 mm. systolic and 125 mm. diastolic, while his blood urea fell from 100 to 40 mg., and his general condition greatly improved. Evidently his blood pressure on admission was too low for due elimination of nitrogen by his defective kidney, and it had fallen

through cardiac insufficiency. When the condition of the heart was improved by digitalis it was able to cope more successfully with the necessities of the situation. In such a case to lower blood pressure is to court disaster.

A case of azotaemic nephritis may terminate through failure of the pump, the tubing, or the filter; in other words, through heart failure, rupture of a vessel as in cerebral haemorrhage, or uraemia.

Uraemia.

What signs and symptoms can rightfully be included under this heading? Personally, I should exclude the diarrhoea and vomiting, which may be regarded as alternative methods of excretion. I have already pointed out that 8 grams of nitrogen can be eliminated by the bowel in this way; and Graham has shown that considerable quantities of ammonium salts are present in the vomit of a uraemic patient. The skin rashes I should also look upon as an attempt to excrete toxins. This leaves us with three groups of symptoms which can be fairly classed as uraemic, but I would urge that these groups are due to different toxic substances and are of different significance.

1. *Convulsions and Amaurosis.*—Though very dramatic symptoms, these are really of less serious significance than the others. Patients may recover not only from the attack, but actually from the nephritis. They may occur also in eclampsia and toxaemic kidney, both conditions from which recovery may be complete. In my series of 160 cases of war nephritis convulsions occurred in 8. They all recovered and escaped without permanent damage to the kidney. It has been suggested that these symptoms are due to some toxin acting on the liver rather than to the kidney lesion. On this view I am in favour of treating such patients with insulin and dextrose, since a hepatic toxaemia is best helped by providing an ample store of glycogen in the liver. But there is no doubt that the best and most rapid relief can be given by prompt venesection. Bennett ingeniously compares the convulsions to tetany, pointing out that there is a reduction of blood calcium in both conditions.

2. *Uraemic Asthma.*—The sufferer from this has been graphically described by Rose Bradford as "a drowsy patient, with hissing respirations and bleeding gums." I believe that the cause of this distressing syndrome is acidaemia from failure of the kidney to excrete acid sodium phosphate. The hydrogen-ion concentration of the blood is consequently raised and the dyspnoea is an attempt at compensation for this by washing out carbon dioxide from the lungs. A compensated alkaline defect may exist without dyspnoea, but an uncompensated alkaline defect will cause dyspnoea and calls for free administration of alkalis. De Wesselow finds that a rise of blood phosphates and a fall in calcium content go together.

3. *Headaches; drowsiness; twitchings; hemiplegia; monoplegia; neuralgias; formication; pruritus.*—All this group of symptoms appear to be associated with nitrogen retention. The actual cause of the symptoms seems to be exudate of lymph and even of actual blood through the capillary wall, especially into the cerebral and the subcutaneous tissues. Small punctiform haemorrhages are commonly seen in necropsies on uraemic patients, and large or small purpuric areas in the skin are not infrequent. Canti considers that a blood urea of 300 mg. is a sure portent of a fatal issue; and I should agree, though I have had one case with a blood urea of 500 mg. reduced to 70 mg. under treatment, and sufficient clinical improvement for the patient to leave hospital. He died, however, about six weeks later. In this case, as there was no dyspnoea, the plan of giving hydrochloric acid was adopted, and the improvement certainly appeared to follow this. It has been suggested that in this way toxic amino-acids are converted into ammonium chloride, but I am not convinced that this is chemically sound. But, as already pointed out, dyspnoea implies an acidaemia calling for free administration of alkalis, under which I have also seen some slight fall in blood urea.

In connexion with nitrogen retention I should like to call attention to the different results given by the hypobromite and urease tests for non-protein nitrogen in the blood. The former method gives the amino-acids as well as the urea, the latter the urea only. Now in health 92 per cent. of the nitrogen given by the hypobromite test comes from the urea, but it must not be assumed that a similar proportion exists in disease. I have, indeed, found the hypobromite test yield twice as much nitrogen as the urease test in uraemia. In other words, in uraemia there is a large increase in the relative and absolute amount of non-protein nitrogen other than urea, and it is presumably this "unknown" amino-acid fraction which is toxic, since urea is a harmless substance. If only one method is going to be used it is better to employ the hypobromite test. But using both gives most useful information as to the amount of toxic material.

This is well illustrated by the great rise of blood urea, sometimes accompanied by tetany, in cases of pyloric obstruction and in toxic conditions severe enough to produce anuria; here the hypobromite and urease methods may give identical figures showing that the rise of blood urea is merely secondary to failure of excretion; there is not, at any rate at first, any excess of amino-acids produced by altered metabolism. Pyloric obstruction presumably acts by preventing ingestion of fluids into the blood stream, so that there is not sufficient for the kidney to function properly. The combined use of the hypobromite and urease methods is a useful way of recognizing such conditions and of proving that they are not primarily renal in origin.

It will be seen that I do not subscribe to the doctrine sometimes advanced that the symptoms of uraemia are due to one specific toxin, albeit of unknown nature. On the contrary, it seems to me that the three different groups of symptoms above detailed are much more likely to be due to different chemical poisons.

CONCLUSION.

In conclusion, I am conscious that these more recent investigations appear to have had a destructive rather than a constructive effect on treatment. This must be admitted, but new aids to treatment will surely spring from a sounder pathology. In the meantime, our patients will do all the better and be more comfortable if we realize that many of the methods formerly recommended in the treatment of these diseases are impotent where not actually harmful.

FURTHER OBSERVATIONS ON THE MACROPOLYCYTE.

BY

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THE statement that megakaryocytes are not infrequently found in the peripheral blood continues to be repeated in papers and in textbooks, but while not denying that the megakaryocyte may be found in the blood stream, its presence must be extremely rare. I have never seen, in blood films, a cell which faithfully resembled the multinucleated giant cell of the marrow; nor have I seen photomicrographs or drawings of the cells so described that are at all convincing. There is every probability that the vast majority of the so-called megakaryocytes found in blood films belong to one or other class of macropolycyte.

DEFINITION.

The term "macropolycyte" (1927) is applied as a descriptive title to the large or giant polymorphs found in certain conditions. The normal neutrophil polymorphonuclear leucocyte, for brevity called the polymorph, measures 10 to 12 microns in diameter in fixed and stained films. (Plate I and Plate II, Fig. 1.) The title "macropolycyte" is given to the large cells of the polymorph type having a diameter of more than 14 microns. It is of this cell which this paper treats, but for its better appreciation a few details concerning the polymorph may be recounted.

THE POLYMORPH IN HEALTH AND IN INFECTIONS.

The polymorph enters the blood stream from the marrow with a single-lobed nucleus, and as its life in the circulation continues, the nucleus becomes more lobulated until

towards the end of its existence it has four or five segments united by fine strands of chromatin. (Plate I.) In the blood stream, therefore, there are normally cells representing the various periods from youth to senility, and it was found by Arneth (1904) that the numbers of polymorphs with one, two, three, four, or five nuclear segments were remarkably constant in health and could be classified on those lines. My own average normal count—that is, the percentage of cells in the various classes corresponding to nuclear segments—is:

Class I.	II.	III.	IV.	V.
10	25	47	16	2

This was the average of the counts of 90 normal persons of both sexes between the ages of 12 and 55 years. The greatest possible care was taken to exclude infection at the time the blood was taken, and for two months previously. The teeth, throat, nose, ears, chest, abdomen, and urine were examined, and in many cases radiograms were taken of the chest and teeth.

The length of life of the polymorph in the blood stream has been estimated on experimental and clinical grounds (Ponder, 1926; Cooke and Ponder, 1927) to be approximately three weeks. The figures given above represent a polymorph population comparable to infants, children, men, old men, and senile men, in which the deaths in the older groups are exactly compensated for by the births from the marrow. The figures of the polynuclear count tell us whenever this normal state becomes altered, whether by the addition of an unusually large number of young cells, by the removal of an unusually large number of old cells, by both these conditions combined, or by some interference with the normal development.

It will be noted that no class is provided for cells with more than five nuclear segments. Such polymorphs are so rare in normal blood that when they do occur they are placed in Class V.

In infective conditions the percentage of cells of Classes I and II is increased, and the older cells of Classes IV and V rapidly disappear from the circulation. The count has, therefore, a left-handed drift, as in the following example.

	I.	II.	III.	IV.	V.
Normal	10	25	47	16	2
Typhoid fever	54	31	15	—	—
Scarlet fever	44	43	13	—	—
Measles	45	39	16	—	—
Erysipelas	45	40	14	1	—
Diphtheria	41	39	17	3	—
Rubella	30	35	32	3	—
Varicella	33	35	28	4	—
Pertussis	34	39	27	—	—
Puerperal sepsis	42	37	21	—	—
Cerebro-spinal fever	40	45	14	1	—
Lobar pneumonia	57	26	15	2	—

These facts make the appearance of the macropolycyte the more remarkable, because, although a fairly rare cell, it is found in infections associated with a polymorphic leucocytosis and a left-handed polynuclear count.

THE MACROPOLYCYTE.

On morphological grounds macropolycytes may be divided into two classes. The first, or Type I, macropolycyte resembles the other polymorphs of the blood film in that its nuclear structure and fine oxyphil granules are indistinguishable from those in the polymorph, but differs from that cell by reason of its large size and by the hypersegmentation of its nucleus.

The second, or Type II, macropolycyte may be styled "the megakaryocyte type," because its gnarled nucleus and coarse granules, some of which are azurophil in staining reaction, resemble to some extent those of the bone marrow giant cell. The conditions in which these giant polymorphs are found are:

I. *The Type I Macropolycyte.*—(1) In health. (2) In infections and in other states in which there is bone marrow reaction—for example, the acute pyogenic infections, acute tuberculosis, certain cases of carcinoma, the exanthemata, myeloid leukaemia, malaria,* and in rabbits with experimental anaemias due to ricin and repeated haemorrhages. (3) In Addison's anaemia.

II. The *Type II macropolycyte*, or the megakaryocyte type, is, so far as my own experience extends, found only in cases of Addison's anaemia in grave relapses.

Before proceeding to further discussion of the two types, the moment is opportune to suggest that, although the Type I macropolycyte found in Addison's anaemia may be morphologically identical with its prototype found in health and in intoxications, the cause of its appearance is probably very different. For this reason the Type I macropolycyte

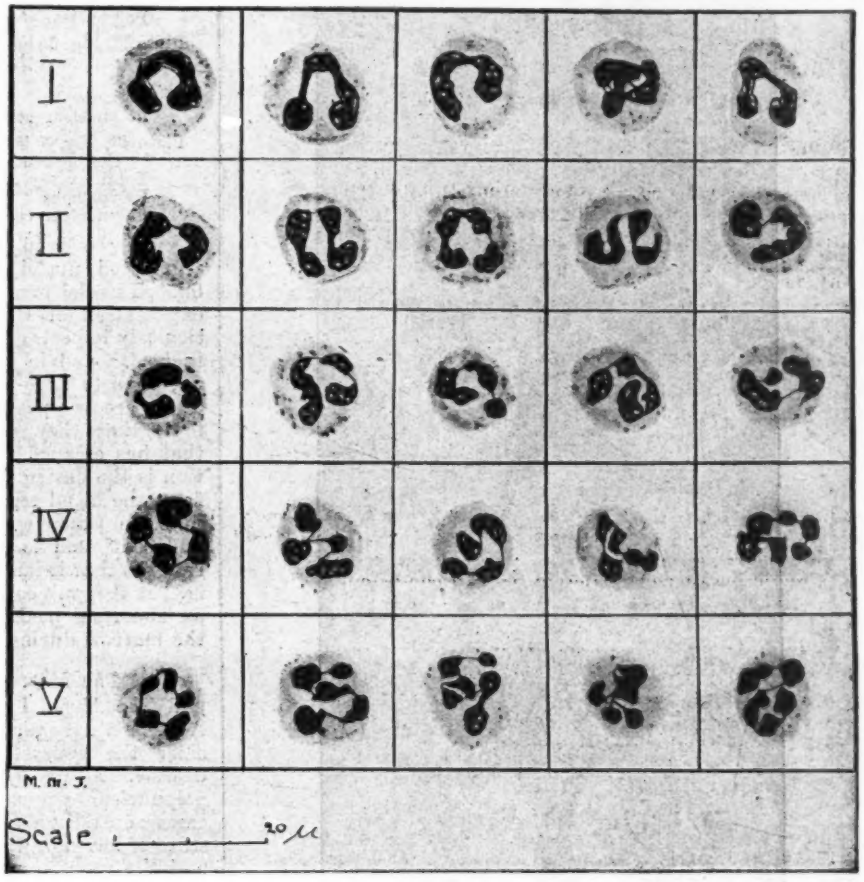

PLATE I.

The five classes of the Arneth or polynuclear count. If there is any band of nuclear tissue, except a chromatin filament, uniting the nuclear masses, those parts must not be considered as separate segments. Class I, No. 2, Class II, Nos. 3 and 4, Class III, No. 4, and Class IV, No. 5, illustrate this point. In Class V, No. 4, the upper segment of the nucleus overlies the segment below it, but the thin chromatin filament uniting them can be seen on the left.

* The fact that macropolycytes occurred not infrequently in malaria was pointed out to me by Dr. D. U. Owen, clinical pathologist, Liverpool School of Tropical Medicine.

of health and of intoxications would be better considered together, and both the types found in Addison's anaemia classed under the heading "the macropolycytes of Addison's anaemia."

The Type I Macropolycyte in Health and in Conditions of Abnormal Marrow Activity.

1. *In Health.*—Macropolycytes are extremely rare in health, no example being seen in the blood films of the 90 investigated normal persons that formed the basis of our average normal count. Recently, however, I observed a macropolycyte in a man, aged 34 years, whose polynuclear

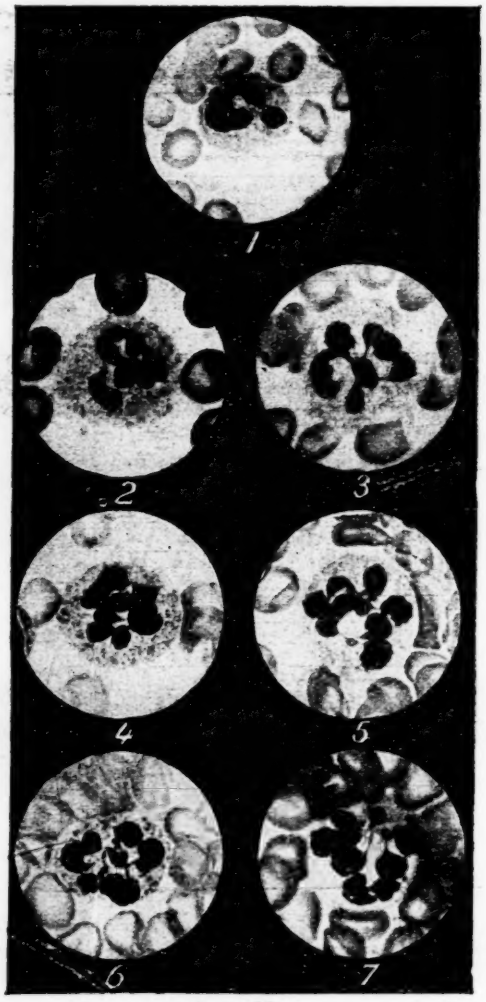

PLATE II.

FIG. 1.—A normal polymorph. (× 1,000 diameters.)

FIG. 2.—Macropolycyte, Type I, from a case of staphylococcal osteomyelitis. (× 1,000 diameters.)

FIG. 3.—Macropolycyte, Type I, from a case of streptococcal septicaemia. (× 1,000 diameters.)

FIGS. 4 AND 5.—Macropolycytes, Type I, from a case of mixed infection by *Staphylococcus aureus* and *Bacillus coli*. (× 1,000 diameters.)

FIG. 6.—Macropolycyte, Type I, from a case of streptococcal endocarditis. (× 1,000 diameters.)

FIG. 7.—Macropolycyte, Type I, from a case of carcinoma of the breast. (× 1,000 diameters.)

count had previously been included in the original 90. He was reinvestigated, but no focus of infection could be found. The counts of the two occasions were almost identical:

I.	II.	III.	IV.	V.
11	31	42	14	2

The count has a weighted mean of 2.65, which falls close to the average normal mean of 2.74, and within the limits of normality. I think we must accept the fact that macropolycytes do very occasionally appear in normal blood films.

2. *In Conditions of Abnormal Marrow Activity.* This type is illustrated by the Figs. 2 to 7 in Plate II.

Plate II, Fig. 2 is a macropolycyte found in a case of staphylococcal osteomyelitis, which had the following blood count:

Total leucocytes	18,000 per c.mm.
Polymorphs	87 per cent.
Polynuclear count	41; 43; 15; 1; 0.

Plate II, Fig. 3 is a macropolycyte from a case of streptococcal septicaemia.

Total leucocytes	26,000 per c.mm.
Polymorphs	79 per cent.
Polynuclear count	34; 43; 21; 2; 0.

Plate II, Figs. 4 and 5 are macropolycytes from a case of a mixed infection by *Staphylococcus aureus* and *Bacillus coli*.

Total leucocytes	23,700 per c.mm.
Polymorphs	88 per cent.
Polynuclear count	45; 39; 15; 1; 0.

Plate II, Fig. 6 shows a macropolycyte from a case of streptococcal endocarditis.

Total leucocytes	16,000 per c.mm.
Polymorphs	76 per cent.
Polynuclear count	39; 34; 27; 0; 0.

Plate II, Fig. 7 is a macropolycyte from a case of carcinoma of the breast.

Total leucocytes	14,500 per c.mm.
Polymorphs	76 per cent.
Polynuclear count	35; 37; 26; 2; 0.

It will be seen that the macropolycytes have hypersegmented nuclei, although polymorphs with single and bilobed nuclei predominate in the blood films. What is the explanation of their presence? It is not easy nor particularly important to determine why macropolycytes appear in health and in infections, because they are rare and do not seem to have any prognostic or diagnostic significance. There are two possible explanations of their presence. The first, that they may represent an occasional polymorph that has escaped the physiological mechanism whose function is the destruction of aged leucocytes and their removal from the blood stream. A polymorph has been imprisoned in some tissue space, exceeded its allotted span of life, and continued to develop beyond the normal limits. The result is that it has become a giant. The second explanation is that they are cells whose development has been altered by an abnormal medium to which they have been exposed in the marrow during the first period of their development.

The Macropolycytes of Addison's Anaemia.

1. The Type I macropolycyte is frequently found in Addison's anaemia, and here again it is necessary to consider the general behaviour of the polymorph in this disease. As we have seen above, in the infective state the polynuclear count is left-handed. Many uncomplicated cases of Addison's anaemia, however, show the remarkable state of having an increase in the cells of Classes IV and V, and the count appears to be actually right-handed, as the following figures show:

	I.	II.	III.	IV.	V.
Normal ...	10	25	47	16	2
Case 1 ...	8	20	39	22	11
Case 2 ...	6	27	40	22	5
Case 3 ...	7	20	44	24	5
Case 4 ...	7	16	29	39	9
Case 5 ...	20	31	17	16	16
Case 6 ...	16	22	32	16	14
Case 7 ...	10	15	38	24	13
Case 8 ...	12	34	26	20	8
Case 9 ...	6	20	42	20	12
Case 10 ...	8	24	30	26	12
Case 11 ...	6	18	36	24	16
Case 12 ...	6	20	40	26	8
Case 13 ...	14	28	23	20	15
Case 14 ...	12	28	36	18	6

This condition is not seen in any microbic disease, and is very strong evidence against Addison's anaemia being due to an infection.

It has been pointed out above that no class is made in the polynuclear count for cells with more than five lobes in their nuclei, because cells with more than five lobes are rare in normal blood, and if any are found they are placed in Class V. In Addison's anaemia, on the contrary, hypersegmentation of the nucleus in cells of normal size is frequent. The nucleus may have six, seven, eight, or even ten or more divisions. Plate III, Figs. 1 to 11 are examples of this nuclear hypersegmentation in cells of approximately normal diameter. All gradations in size are seen until the macropolycyte is reached. Plate III,

PLATE III.

FIGS. 1 TO 11.—Polymorphs showing hypersegmentation of the nucleus from cases of Addison's anæmia. (× 1,000 diameters.)

FIGS. 12 TO 16.—Macropolycytes of Type I found in Addison's anæmia. (× 1,000 diameters.)

PLATE IV.

Macropolycytes of the megakaryocyte type (Type II) found in cases of Addison's anæmia. (× 1,000 diameters.)

The photomicrographs illustrating this article are by C. F. Hill and W. E. Cooke. Plate I is reproduced from *Elementary Haematology* by kind permission of Messrs. Charles Griffin and Co. Plates II, III, and IV are reproduced by kind permission of Dr. Paul Chevallier, editor of *Le Sang*.

Figs. 12 to 16 are examples of the Type I macropolycyte. Its frequency in Addison's anaemia contrasts very sharply with the rarity in health and in infective conditions, and the cause of its appearance is not the same.

There are several possible causative factors. Polymorphs of normal size with hypersegmented nuclei accompany the Type I macropolycyte in this disease, and the first thoughts are that there is some biochemical change in the plasma that prematurely ages the polymorph and alters its life-history; the second, that the mechanism for the elimination of old polymorphs is in abeyance. The third reasonable thesis may be advanced that the polymorph is inherently abnormal owing to a defect in its parent, the haemocytoblast, or in its environment. Possibly, too, there is a single biochemical defect that is responsible for all three conditions. The liver diet alters the polymorph picture in a few days. Macropolycytes and polymorphs with hypersegmented nuclei disappear, and at the same time the morphologically and probably also chemically abnormal cells of the haemoglobiniferous series are replaced by cells of normal appearance.

2. The Type II or megakaryocyte type of macropolycyte is found only in Addison's anaemia, and appears in blood films during serious relapses. Almost all the cases in which it has been found have had erythrocyte counts of less than 1,000,000 per c.mm., and before the era of liver treatment all died within a short time of its appearance. After death these large cells are found, as Gulland and Goodall (1925) pointed out, in the liver in association with islets of megaloblasts and in the pre-aortic lymph glands. Plate IV illustrates the variations in this type of cell. The cells are large, measuring up to 24 or more microns in diameter, and resemble the megakaryocyte of the marrow. The nucleus is gnarled and may be of the simple horseshoe type, or may have fourteen or more segments. The coarse cytoplasmic granules are not all oxyphil, but mixed with varying numbers of azurophil granules.

The cell does not resemble any embryonic or post-natal blood stream cell, nor is it an accurate replica of the megakaryocyte of the marrow. The life-history would appear similar to that of the polymorph in that it commences its circulatory existence with a single-lobed nucleus, which later becomes segmented. Its length of life we do not know, nor have we any means of calculating it. There is considerable doubt about its origin. It may be an expression of the abnormal reversion to embryonic type of the marrow haemocytoblast as are the haemoglobiniferous cells in Addison's anaemia. On the other hand, the cell may not arise in the marrow but originate in the mesenchyme descendants in the liver and haemolymph glands that have undergone abnormal myeloid metaplasia.

Conclusions.

1. The macropolycyte found in health and in infection has no diagnostic nor prognostic significance, and is due to the accidental prolongation of the lifetime of a neutrophil polymorphonuclear leucocyte.

2. The causation of the appearance of the Type I macropolycyte in Addison's anaemia is closely related with the factors responsible for the production of hypersegmentation in the nuclei of the polymorph. Whether the factor is a biochemical change in the environment or an inherent defect in its parent cell is not known.

3. The Type II or megakaryocyte type of macropolycyte may have its origin in the marrow, or arise from the endothelium of the liver and haemolymph glands. In the first case it is the product of abnormal reversion of the haemopoietic tissue, and in the second of abnormal myeloid metaplasia.

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CANCER AND THE GENERAL PRACTITIONER.*

BY

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MANY of the papers on the subject of cancer might lead the casual reader to imagine that early diagnosis of this condition is never effected except by the writers of the papers in question, and that practitioners as a body fail signally in their duty to the community. It is often forgotten that the early diagnosis of a case of cancer demands the co-operation of an intelligent and alert patient, ready to seek immediate advice, with a doctor competent to appreciate minor departures from the normal and ready to give immediate advice. The patient, however, may be unobservant; or he may not bother, until it is far too late, about a condition which seems to him—usually because it is not painful—of little or no importance. Conversely, the doctor sometimes lets the patient down by making avoidable mistakes.

Generally, I think, mistakes arise from one of two causes: The first is imperfect examination, which may be the fault of the patient or the doctor. The patient, for various reasons, may refuse to be thoroughly examined, or the doctor may continue to prescribe for his patient without attempting any real examination. He may, for instance, give treatment for "piles" without examining the rectum, or give medicine for abdominal pain without inspecting the abdomen. The other fruitful source of error is want of thought—failure to attain, by a careful summing-up of symptoms, the clear perspective which would lead to an immediate diagnosis.

Unfortunately there is no royal road to a diagnosis of cancer—no short cut, as there is in the case of syphilis. But we have many valuable aids to diagnosis, both bedside and laboratory. In the former category are such instruments as the proctoscope, the sigmoidoscope, and the cystoscope, which are used far too rarely by practitioners, though in many cases they are easy to use, easy to maintain, and most invaluable in the information they give.

In the latter category are tests for occult blood in the stools, or for free acid in the stomach. But it is most important to remember that these are only aids; they must never be considered apart from their context—the patient. We must guard ourselves against the danger of getting lost in a laboratory maze; above all, we must not attach undue importance to negative findings, especially to those of the *x*-ray examination. One often finds that both patient and doctor are lulled into a feeling of security by a radiologist's report that there is nothing abnormal to be seen, which is wrongly taken to mean that nothing abnormal is present.

The subject of early diagnosis embraces a consideration of the preventive treatment of cancer by the early detection and prompt treatment of conditions that we know to be precancerous. I still often see patients with warts of the lip and tongue, papillomas of the bladder, small rodent ulcers of the face, or small tumours of the breast, who have been told that they need not bother about them unless they become troublesome. By the time such things become troublesome they are troublesome indeed.

Periodical Medical Examination.

I will refer briefly to the controversial topic of periodical medical examinations, although why it should be controversial I cannot imagine. We all go to the dentist at regular intervals; we are all examined for life insurance from time to time; some of us have our drains inspected periodically; others have their electric wiring tested. It does not seem to me unreasonable, therefore, to carry this established principle to its logical conclusion and to undergo periodical medical inspection. I should like also to see much more intelligent and sustained instruction of our youth in the elements of physiology, for there can be no question that a more perfect knowledge on the part of the public of normal physiology would result in a quicker appreciation of any departure from the normal standard, and greater readiness to seek advice. At present people know far more of the anatomy and physiology of

* Abstract of a lecture given at Leeds under the auspices of the Yorkshire Council of the British Empire Campaign.

their cars than of their own bodies. They know whether or not the car is missing, or heating up, or knocking, and that such defects require immediate investigation and treatment; but to similar premonitory symptoms in their own bodies they attach no importance, and often fail to undergo an overhaul until complete breakdown has developed.

It is still believed by most surgeons that cancer is a strictly local disease in its early stages, and that if the growth can be completely removed or destroyed a good permanent result will be achieved. What are the local methods of treatment at our disposal? They are only two —operative removal and radium; and it is the anxious and by no means easy task of the practitioner to make or influence a final decision when the alternatives have been put before the patient.

Radium Therapy.

The therapeutic action of radium and its mode of use depend upon the fact that it emits two kinds of rays which produce effects upon the cells and tissues of the body—*beta rays*, which are caustic and indiscriminate in their action, equally affecting every kind of tissue, and *gamma rays*, which are selective in their action, and affect cancer cells more easily than the normal tissues.

The caustic, indiscriminate, and, incidentally, the very superficial action of beta rays renders them unsuitable for therapeutic purposes, and as they are unable to pass through a thin sheet of platinum it is quite easy to cut them off entirely by enclosing the radium in a shell of platinum 0.5 mm. thick. The more powerful and selective gamma rays easily penetrate this amount of platinum, and as it is only these rays that we make use of, it is gamma-ray therapy that we really mean when we speak of radium therapy.

A fundamental feature of the gamma ray is its short radius of effective action; it is therefore necessary to place the radium in intimate contact with the part it is proposed to treat, and so has come about the use of the buried radium needle. Radium needles are hollow, provided with an eye, and vary in length and thickness according to the purpose for which they are to be used and the amount of radium it is proposed to put inside them. Suitably filled, they are threaded with silk or similar material, and embedded in and around the growth, which undergoes destruction, leaving the normal tissues unaffected. But this does not happen all at once, and we know now that there is an important time factor in radium treatment, the effects produced by a large quantity of radium acting for a short time being quite different from those produced by a relatively small quantity acting for a long time. The explanation would appear to be that in the main the gamma ray exercises its selective action upon cancer cells in the act of division. Not all the cells of a growth are undergoing this change at the same time; one cell may divide to-day and be destroyed in the process, while its next-door neighbour, which may not be due to divide for three or four days, will escape injury if the radium is not still in position. There has thus come about the gradual development of a technique involving the use of buried needles each containing no more than two or three milligrams of radium, but remaining in the tissues for a week or so at a time.

There is another important practical point in treatment that results from the selective action of radium upon the dividing—that is, the growing—cell. The main mass of a new growth is composed largely of adult cells which have lived their life, and will, in any event, ultimately die a more or less harmless death. It is at the growing edge of cancer that all the actively dividing cells are situated, and it is therefore the periphery, and not the centre, that matters. If we can control the periphery, the centre will often look after itself. Surround the growing edge with a barrage of radium needles and the whole growth melts away. There are, furthermore, wide variations in the reaction exhibited by different kinds of cancer, but we are beginning to recognize and understand them, and by examination of the tissue are able to form some sort of estimate as to its probable reaction to treatment.

Radium therapy has, however, very definite limitations, chiefly arising from the fact that the action of radium is strictly local. We are all sometimes pressed to give radium treatment in cases with metastases when we know full well that the course of the disease cannot be influenced in any degree whatever. It is our duty to do what we can for our patients, not only physically, but mentally; but we also owe a duty to our own reputation, to our profession, and to the development of radium therapy. It would be the greatest disaster to the cause of radium surgery if the results following upon its reckless and uninstructed use were allowed to obscure the good results obtained in properly selected cases.

Cancer of the Cervix.

Radium scored its first regular and consistent successes in the treatment of cancer of the uterine cervix. At the Cancer Hospital many patients who have come into hospital on an ambulance—weak, emaciated, septic, and bleeding—with a growth of the cervix long past the stage of operation, have been enabled, after treatment by radium alone, to walk home, well and strong. The results of irradiation in cancer of the cervix are, in my judgement, such that radium can now compete on equal terms with surgery in the treatment of early and operable cases of this disease, and I believe that it is perfectly fair and proper to offer patients the choice of operative or radium treatment. Operation, even in the ablest hands, carries a fair mortality, and always involves removal of the ovaries and most of the vagina, but gives a good prospect of permanent freedom. Radium treatment, on the other hand, carries practically no mortality, involves no injury to ovaries or vagina, and gives a prospect of permanent freedom not quite so good perhaps as operation, but at any rate so good that the actual figures over a five-year period afford material for legitimate controversy between the protagonists of the two methods.

Cancer of the Buccal Cavity.

About the next site I want to consider there is no controversy at all. It is the tongue, and buccal cavity generally, and here, with epithelium which closely resembles that of the cervix uteri, the results are similar. All surgeons will agree that operations for cancer of the tongue are about the most disappointing they are called upon to perform. It is true that we have all had occasional successes, but my own were so few and far between that I came to dread the admission of these cases to my wards. You will understand, therefore, with what interest we watched the work of Regaud in Paris and Evans and Cade in this country, and how gladly we relinquished operative surgery and whole-heartedly adopted the radium needle technique for the treatment of these depressing cases. We have a long way to go yet, and much to learn, particularly in dealing with the secondary glands, but we have certainly reached a point where it may be said that the treatment of choice for cancer of the tongue, floor of mouth, cheeks, pillars of fauces, tonsil, pharynx, and larynx is radium.

Cancer of the Breast.

The radium treatment of breast cancer is still in the experimental stage. The operative treatment of early cancer of the breast gives excellent results, for the mortality is negligible, the mutilation is not important, and the ultimate results are good. What can radium offer in similar cases? The immediate results in many cases are apparently as good as those obtained by surgery; the primary growth shrivels up, the glands disappear, and, of course, the breast is not sacrificed. But we do not know yet how long this will last; the systematic treatment of early breast cancer by radium has not been practised long enough to enable us to form a clear opinion as to whether the primary growth or glands return, or whether distant metastases are more or less likely than after surgical operation. My own practice, therefore, is to operate upon early and suitable cases, but to use radium when the patients are old and feeble, when there is any intercurrent disease, or when —owing to extensive glandular involvement—there appears to be no good prospect of obtaining permanent cure by operation.

Cancer of the Rectum.

I think the position with regard to the rectum is very similar to that of the breast. I have seen a few very good results from radium treatment—that is to say, destruction of the growth without the disadvantage of a permanent colostomy. But these cases are so few in number, and the results of surgery in early cases are so good, that I still think it our duty to recommend surgical removal in suitable early cases, reserving radium for the more advanced cases, for the old and feeble, and for the very young; for I know of no case of cancer of the rectum under 30 years of age where operation has had any permanent success.

These examples exhaust the common kinds of cancer in which radium has had a real test, but it has been tried, and is being tried, in many other situations. Cancer of the stomach, cancer of the colon, and cancer of the head of the pancreas are examples that suggest themselves as suitable, and I have embedded radium in all these situations. The numbers are too few, however, and the time too short, to form any definite conclusion about results.

THE RESPONSIBILITY OF THE SURGEON.

Cases of this latter class lead to a consideration of the question as to who is to decide when radium should be applied, and who is to apply it. There is no possible doubt as to the answer; it must be the surgeon; for who else is competent to perform an exploratory laparotomy, to diagnose the nature, and estimate the extent and connexions of the growth, and embed radium needles suitably and effectively in such a way that they will do their work and then permit of safe withdrawal? In the past in this country radium has been chiefly entrusted to the care of roentgenologists, who from the very nature of their training and daily avocation have few opportunities of acquiring extended clinical experience or of familiarizing themselves with surgical technique. But now that the position of radium has been established in surgery many hospital authorities have put their stock of radium in charge of the surgical departments.

In my view this is the right procedure, and surgeons who wish to keep in touch with modern developments must learn the principles and practice of radium therapy in exactly the same way as they would learn the use of a new instrument or any other new method of treatment of proved value. There is no need even to discuss the suggestion that a new class of specialist should be evolved—primarily a physicist—who must learn enough surgery to enable him to devise means of approach to growths in the less accessible situations. The "surgery of access" is everyday surgery, and the view that the use of radium should be confined to a special class is just as unreasonable as the suggestion that the use of potassium iodide should be confined to pharmacologists.

TREATMENT OF ADVANCED CASES.

In discussing the treatment of advanced cases of cancer—cases which, for various reasons, do not lend themselves to radical operation or to radium treatment—I would first refer to the role of palliative operations—operations, that is to say, which merely aim at increasing comfort and prolonging life. There is a whole range of such operations—gastrostomy, jejunostomy, colostomy, and cystostomy—all most valuable in their way, but all carrying grave drawbacks in their train, chief of which is the fact that they must be performed upon patients already doomed to die of their disease, and so have come to be associated in people's minds with a hopeless outlook. I find that this pessimism is not confined to the general public, but that practitioners as a whole share the common opinion, and, indeed, often add the weight of their influence in dissuading their patients from undergoing them.

I find it easy to understand this, for no one practitioner sees very many cases of the kind, and it is difficult enough for him to form a just estimate when he daily sees his case going steadily downhill. He is inclined to forget how much unhappier the patient would be without it, and how much, on the average, such an operation does towards prolonging life and increasing comfort. One only sees the value of these operations in perspective when they are done for non-malignant conditions. For example, a gastrostomy done for simple stricture of the oesophagus is fully compatible with an active busy life. Similarly, jejunostomy performed for the treatment of chronic simple ulcers of the stomach too extensive for removal is an operation which has given brilliant results—so good, in fact, that I have lately tried the experiment of treating the smaller ulcers of the stomach by jejunostomy in preference to partial gastrectomy. I invariably perform it in all cases of cancer of the stomach too advanced for excision or for gastro-enterostomy. Pain is at once relieved, vomiting ceases, and nutrition is easily maintained by four-hourly feeds through the jejunostomy tube.

What other means are at our disposal for helping the later stages of cancer, and delaying its almost inevitable termination? I am afraid we must reluctantly admit that there is nothing at present which is likely to prove a universal cancer cure. We are therefore reduced to treating symptoms, and I would like to refer to a few points which are brought home to us by our experience in the incurable wards of the Cancer Hospital.

Unquestionably our most important duty is to relieve pain, and to this end there is nothing that takes the place of morphine. Very large doses will often be necessary, but it is worth remembering that cocaine and hyoscine are useful variants in cases where morphine has distressing after-effects, or is ineffective. Many painful conditions are much relieved by exposure to *x* rays. There is no doubt a psychic element as well, but our patients at the Cancer Hospital certainly get great help and comfort from their periodical visits to the *x*-ray department.

Surgical opportunities of dealing with severe pain are few and far between, but when they come the results may be dramatic. For instance, the division of the lingual nerve in cancer of the tongue, or, better still, the destruction of the third division of the trigeminal nerve by alcohol injection, gives immediate relief. Bolder measures involving such major surgical procedures as the division of the posterior spinal roots, or even a portion of the cord itself, have a smaller application than might be expected owing to the poor general condition of the patient by the time that they are indicated. The aspiration of fluid from the pleura or the abdomen is an obvious method of giving help, but I am not sure that it is generally done soon enough or repeated often enough.

Attempts to control discharge from sloughing surfaces afford scope for ingenuity in the use of antiseptics, but the value of any antiseptic is greatly increased if it can be applied in the form of a power-driven spray. The mouth sprays used by dentists and operated by compressed air are most useful for this purpose and thoroughly cleanse every crack and crevice on a sloughing surface. I should like to see compressed air laid on at every bed in a cancer ward. If discharge is largely derived from excessive mucus secretion, the value of belladonna should be remembered. It gives special help in pharyngeal cases where the presence of much frothy mucus is such a troublesome feature.

The question of deodorants must also claim attention, for however careful we may be in maintaining adequate ventilation, something of the kind is often necessary. In my experience the most valuable has proved to be essential oil of peppermint, which should be sprinkled on the dressings or the blankets. It is true that it only hides one unpleasant smell by a more powerful one, but at least it is recognized and understood, whereas the undisguised smell of advanced uterine or rectal cancer, of which happily the patient is often quite unconscious, brings the greatest misery and suffering to the relatives and friends.

In thinking of symptoms and their relief we must not forget the patient. Sunshine, real or artificial, and fresh air, are of just as much importance in cancer as in other wasting diseases, and I look forward to the time when such hospitals as my own will have branches in the country where the incurable cases may spend their last remaining months of life on sunny balconies in the open air, rather than in the confined wards of a London hospital.

EXTRAUTERINE GESTATION AT TERM WITH HEALTHY BABY.

BY

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ALL cases of extrauterine gestation late in pregnancy are sufficiently rare and interesting to be worth recording in some detail, but the following case has several features that are probably unique.

E. M., a married woman, aged 25, first attended the ante-natal department of University College Hospital on July 3rd, 1928, being pregnant for the first time. Apart from scarlet fever and a vague history of "gastric trouble" she had always been very healthy. Her periods had been quite regular during her married life until February. On February 10th a period began which lasted four days, after which she saw nothing.

During the first three months of the pregnancy she suffered from morning sickness, and during the last few days of June she complained of attacks of colicky pain around the umbilicus, lasting for three or four minutes. Sometimes she vomited during these attacks, and at other times not at all. There was no vaginal bleeding then or, indeed, at any time during her pregnancy.

She was examined for the first time on July 5th. Her general condition was good, and her heart and lungs normal. The height of the fundus was noted as twenty-six weeks, although she was only twenty weeks and five days pregnant according to her dates. The presenting part was above the brim, but the presentation could not be determined. The foetal heart sounds were not heard, although foetal movements had been noticed by the patient. The pelvic measurements were normal, and the urine contained no sugar or albumin.

She next attended on August 16th, when the presentation was found to be a right sacro-anterior. On October 11th she again complained of attacks of pain of one month's duration, which were becoming more frequent. There was no vomiting, but she was compelled to lie down during the attacks. She was unable to pass water during the attacks, and also complained of frequency and pain on micturition. On examination the height of the fundus corresponded to thirty-five weeks' pregnancy; the presentation was still a breech, her temperature 98.6° F., blood pressure 136/96 mm. of mercury, and urine quite normal. On this date the foetal heart sounds were heard for the first time at the fundus uteri. Nothing abnormal was noted on abdominal examination, and she was given a palliative for her symptoms.

On October 18th the presentation was transverse, and on the 27th she was admitted as an in-patient. On the 29th she was examined under anaesthesia. The foetal parts were not excessively easy to define even under the anaesthetic. The foetus lay in the left cephalic dorso-posterior position. After attempting external version the head lay above the pelvic brim slightly to the right, but could not be pushed down into the pelvic cavity, although it did not appear to be unduly large. On internal examination no pelvic contraction could be discovered, the external os was closed, and the cervix not taken up. Two theories were invoked to explain the failure to complete the external version: (1) extension of the legs of the foetus; (2) a short umbilical cord caught round the neck or the body of the foetus. At the end of the manipulation the foetal head lay in the right iliac fossa, and the foetal heart rate had risen from 140 to 180 per minute.

On the next day the head again lay on the left side, and an *x*-ray examination was made. The film confirmed the presentation, and showed that the foetal legs were flexed and the bones normal in every way. The patient was discharged with instructions to come up immediately if labour began, and in any case to come into hospital two days before the expected date of delivery (November 17th). She was readmitted on November 15th with the foetus still lying transversely. Two lines of treatment were considered: (1) internal version during labour; (2) Caesarean section. The latter was finally decided on as the patient was anxious to have a living child, and the risk to herself was probably not greater than that of internal version and breech extraction. Her general condition was still that of a normal healthy pregnant woman.

On November 20th an operation was performed by Professor F. J. Browne, under general anaesthesia (chloroform followed by ether), administered by Dr. H. N. Webber. A right lower paramedian incision 8 in. long was made, and the abdomen opened. At once several abnormalities were noted. In the first place, the left round ligament lay almost in the mid-line at the pelvic brim (suggesting torsion of the uterus); secondly, the "uterus," which was pale yellowish in colour, had two dark venous sinuses low down on its anterior surface lying subperitoneally. An incision was made between them, and to our surprise liquor amnii began to escape before the scalpel had sunk to any appreciable depth. In enlarging the incision a slight nick was made in the lower edge of the placenta, and from this free haemorrhage occurred. The foetus was then delivered, and the cord, which was wound once around the trunk, separated. Meanwhile the house-surgeon had endeavoured to turn the uterus out of the abdomen, but it was noticed that he only held placenta and membranes in his hand. On further examination the uterus was found lying above the pelvic brim, and pushed far over to the right side, while the placenta was attached to the left cornu of the uterus and the left broad ligament. There were no adhesions to the hollow viscera, so that removal of the placenta presented no great difficulty. The infundibulo-pelvic and broad ligaments and the cornu of the uterus were clamped, and the placenta and membranes, with the left tube and ovary and the greater part of the left broad ligament, removed. (The right tube and ovary appeared quite normal.) Owing to the softness and vascularity of the parts ordinary pedicle ligatures cut through and failed to control the haemorrhage, which was fairly free. This was controlled by digital pressure until interrupted mattress sutures of catgut could be inserted. These effectively controlled the bleeding, and all that then remained was to cover over the raw area with peritoneum, using that of the anterior and posterior layers of the broad ligament.

The patient left the theatre in fair condition, with a pulse rate of 130 per minute, and on returning to the ward she was given rectal salines, and, later, morphine 1/4 grain with atropine 1/120 grain. She quickly rallied from the haemorrhage, and was able to suckle her baby after the third day. The temperature was normal throughout the puerperium. On the tenth day the stitches were removed, and on the twenty-first the patient left hospital. No lochia were seen at any time.

The baby was a full-time female child, well formed, and weighing 6 lb. 6 oz. at birth. After dropping to 5 lb. 11 oz. on the fourth day it gained weight steadily, and left hospital weighing 6 lb. 10 oz. It was fed at the breast every three hours during the day.

The Specimen.

The specimen removed at operation was found to consist of a sac, placenta, ovary, tube, and part of the left round ligament. The sac wall contained three layers—amnion, chorion, and peritoneum. The placenta was divided into several separate areas with membrane between, and the insertion of the cord was velamentous about one inch from the lower margin of the placenta. The maternal surface was rough, where it had been detached from the uterus and the base of the left broad ligament, but a considerable part of it was smooth on both sides, due to the attachment of the placenta to the posterior layer of the broad ligament, which had been removed with it, and therefore remained *in situ*. The left tube and ovary lay below and in front of the sac, and the inner end of the tube was extremely stretched, so that it at first appeared to end three inches from the left cornu of the uterus. This, however, was only apparent, the isthmus being stretched over the sac wall and placenta so as to be indistinguishable from them. The left ovary contained a corpus luteum. It was concluded that this was a case of secondary ligamentary pregnancy, which had grown at the expense of the posterior layer of the broad ligament.

Comment.

Several features in this case are worthy of note as being unusual in cases of extrauterine gestation:

1. Neither the symptoms nor the signs during pregnancy were sufficiently pronounced to suggest the diagnosis of extrauterine gestation. In most recorded cases an extrauterine gestation lasting till term has produced a severe or fatal illness, whereas in this case the patient was comparatively well throughout the pregnancy.
2. The diagnosis was not made until the operation was in progress.
3. This case probably provides a unique reason for the failure of external version. It is, indeed, remarkable that the sac was not ruptured by the attempt.
4. Contrary to the usual findings in such cases the child was not deformed.
5. The unusually favourable site of the placenta no doubt accounts for the happy result to mother and child.

When last seen, on March 15th of this year, the mother and baby were both doing well, and the baby weighed 13 lb.

A similar case was reported by Dr. Fairbairn in the *Proceedings of the Royal Society of Medicine*, vol. xii, April, 1919, p. 183; and another by Mr. Jessop in the *Obstetric Transactions* for 1875.

I am much indebted to Professor Browne for his help and for his permission to publish this case.

THE RADIOSCOPICAL DIAGNOSIS OF FILARIASIS.

BY

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HOSPITALS in tropical countries are not as a rule provided with *x*-ray apparatus, and consequently medical practitioners in the tropics have not often the advantage of investigating cases by this simple and reliable method of diagnosis; radioscopy cannot be introduced where electrical plant is not installed. This field of medicine has, however, not been neglected when opportunity admitted. Ample evidence of progress in this respect was afforded recently in London by demonstrations of the diagnosis of tropical bowel ailments, and in Egypt by the notable work of G. O. Lotsy, Mahmoud Affifi, J. E. Bateman, and others, who have so strikingly brought the later complications of bilharziasis within the region of exact diagnosis by the *x* rays.

One form of filariasis may be considerably illuminated by the *x* rays—the filariasis due to the invasion of the trematode worm *F. bancrofti*, which in its adult and larval stages infests the human lymphatics, and is a widespread infection of many tropical countries, being transmitted by the three genera of mosquitos—culex, aedes or stegomyia, and anopheles.

The disease, though not indigenous, is by no means unknown in England; its late manifestation, elephantiasis, appearing after a person has left the tropics. In its earlier stages filariasis (*F. bancrofti*) may be a silent disease giving rise to no symptoms, only diagnosable by blood examination (eosinophilia and the presence of larvae).

Elephantiasis may not show itself for an undefined number of years after the initial infection with the parasite; it is not, of course, a silent phase of the disease, but mild and early cases are not easy to diagnose with certainty because, the adult parasites being dead, the larvae have disappeared from the blood, and eosinophilia is not always present. A patient may present himself with a limb or appendage somewhat bigger than its fellow, which on examination exhibits a little solid oedema, perhaps conspicuous superficial veins, but, objectively, little more. If it be the lower limb, as it frequently is, the patient may experience a sensation of tenseness and numbness after walking—a feeling that it does not belong to the owner; such symptoms are not peculiar to elephantiasis. No doubt this condition will be suspected if there is a history of residence in the tropics. If, however, the blood examination is negative the diagnosis is a matter of opinion. Well-marked cases with characteristic signs due to much lymphatic obstruction following oft-repeated infections are easily diagnosed without the assistance of radioscopy; they are seldom seen in England, but in mild cases, where the parent worms are dead, calcified, and encysted, *x* rays may be a valuable help to diagnosis. The case which I am recording is one in point.

A missionary, aged 62, had spent thirty-four years in South Africa in a parish of 649 square miles, situated between Durban and East London on the east coast, with the Indian Ocean on the east and the Drakensberg range on the west—the Transkei native settlement. During the first fourteen years he spent one night at one place and the next night at another, and so on, month by month; he was frequently bitten by bugs and mosquitos in the huts which he tenanted. It is worthy of record that he had never suffered from malaria or dysentery; in fact, he never had a day's illness during his thirty-four years in Africa. For the last eighteen years he was more or less stationary at Tsolo, Kaffraria.

Diagnosis in his case was important, for he had for some time been looking after a leper, and he himself suspected that he had leprosy. The usual examination of faeces and blood were made, with negative results; there was a trifling eosinophilia (5 and 9 per cent.), but the nocturnal and diurnal blood contained no larvae. The urine was normal, as was the heart; in fact, the only pathological condition present was some calcareous degeneration in the arteries shown well in the anterior tibial artery in one of the films which were taken. The left leg was quite normal; the right was a little larger, the calf by 1½ inches and the thigh by 2 inches. Beyond the sensation of increased weight and the feeling that the leg did not belong to him—sensations experienced after walking—there were no subjective symptoms. Except for some conspicuous veins the skin was natural in appearance; the tactile and other afferent sensations were normal. He recently had no difficulty in walking fifteen to twenty miles a day in Switzerland.

Comment.

I have seen an *x*-ray film from South Africa presenting a somewhat similar cystic condition, though the cysts were much more numerous and appeared to be distributed to all the skeletal muscles of the body, including the face muscles. The cysts were much the same shape as in my case. This film was that of a native infested with the *Cysticercus cellulosae*. The individual cysts appeared to be larger than those of *F. bancrofti*, and there is no reason for thinking that the present case was a case of *Cysticercus cellulosae*. I hoped to have been able to reproduce the photographs of the case and the *x*-ray films, but this was not practicable.

The right leg is slightly larger than the left. Small oblong cyst-like objects occur in the thigh and calf, though only scantily, one in the thigh and one (perhaps two) in the calf; they may well be occupying lymphatic vessels. They appear to taper towards one end; on the films the shadows seem to be about half an inch long, the thick end appears to be of a lighter shadow than the tapering end. I had the leg *x*-rayed in two or three positions, and the objects were always there, altered, of course, in position according to posture.

I examined radiologically other parts of the body—the pelvis, abdomen, chest, and neck—but I could find no filaria worms occupying the lymphatics elsewhere; no doubt others were present, but they were not calcified and therefore did not show in the films.

The cysts which are visible appear to be about half an inch long, to be thicker at one end, tapering to the other; the broad round end appears to be of a lighter shadow on the film.

DIFFERENTIAL DIAGNOSIS OF SPUTUM IN CHRONIC LUNG INFECTIONS.

BY

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THE differential diagnosis of a sputum demands not only its direct microscopical examination, but the preparation and examination of cultures. With respect to the former, when tubercle bacilli are found they may be classified into long, short, or minute forms, and further note may be made of whether or not the organisms are granular, and of the occurrence or otherwise of clumping. The most chronic clinical type of tuberculosis appears to be associated with the presence of long granular bacilli showing clumping; the most acute type with minute, non-granular, and scattered bacilli. At the same microscopical examination the presence of "other organisms" should be noted. These are commonly *B. influenzae*, pneumococci, streptococci, and staphylococci.

Whenever "other organisms" occur a cultural examination has shown them to be invariably associated with yeast-like fungus forms. It follows that as the simplest culture medium for the growth of fungi is beer wort, samples of all sputa should be put up for culture on this medium. The vast majority of fungi thus cultivated belong to the group of fungi imperfecti, and are chiefly monilias. In approximately 85 per cent. of cases monilias are found alone; in the remaining 15 per cent. they are found associated with other fungi. Castellani's pathogenic forms are frequently isolated.

The literature on the subject of monilia infection of the lungs is accumulating, but, unfortunately, moniliasis is usually referred to as a tropical disease. As a result, however, of the above routine examination of sputa one is forced to the conclusion that a large percentage of patients suffering from tuberculosis of lung are suffering also from moniliasis, and that in cases in which fungi are not present the patient is usually not so much a sufferer as a carrier of tubercle. The following is a classification of the results of 2,373 systematic differential examinations of the sputa from 304 patients during 1928: of the 304 patients, 62 were

negative both to tubercle and to fungus infection; of the remaining 242 patients, 6.61 per cent. were infected with tubercle bacillus only, 27.27 per cent. with mixed tubercle bacilli and blastomycetes, and 66.11 per cent. with blastomycetes only.

What may be the significance of the presence of these blastomycetes? They are always to be found in sputa containing "other organisms," and whether considered as pathogenic or non-pathogenic they certainly appear to be activators of growth, not only of "other organisms," but also of the tubercle bacillus. Treatment with vaccines and with alkaline potassium iodide causes the disappearance of the fungus and the diminution, at times a total disappearance, of the tubercle bacillus. Potassium iodide is recognized as the drug of choice in the treatment of fungus infections, and it may be noted that the tubercle bacillus is classed as a fungus belonging to the family Mycobacteriaceae. In Jersey differential diagnosis and differential treatment of tuberculous infections have been associated with the striking fall in the total death rate from all forms of tuberculosis which followed the institution of the bacteriological laboratory in 1922. The reduction in these deaths in the years during which differential methods have been employed is shown in the accompanying table.

Year.	Tuberculosis Deaths.	Year.	Tuberculosis Deaths.
1922	86	1926	53
1923	62	1927	55
1924	65	1928	47
1925	49		

Conclusion.

It is considered that the fall in deaths from tuberculosis has been due to the foundation of a laboratory, which has allowed of differential diagnosis and consequently of differential treatment.

TREATMENT OF SEPTIC HANDS AND FEET ON SHIPBOARD.

BY

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NEW BARNET, HERTS.

WHILE acting as a temporary ship surgeon on a cruise extending over a period of five months, I recently had occasion to treat a series of septic hands and feet among some of the crew. Owing to lack of facilities, instruments, and drugs, I was forced to employ methods differing considerably from those to which I was accustomed. But the apparent success was such that publication of some of these facts might be helpful to someone similarly situated, or might interest someone in a better position than myself to carry on further investigation.

Most of the cases occurred in the tropics, which have a bad reputation for prolonged healing in septic cases. The commonest condition was septic hands among firemen, probably caused by blistering or burning of the skin of the palm, dirt, grease, and infection being then well ingrained into the wound.

Routine Treatment of Abscesses.

The general routine treatment was to open up the abscess with an incision at least one to one and a half inches in length, make no attempt to prevent bleeding, which at times was quite brisk, and then plunge the septic limb into a hot iodine bath (1 drachm of tinctura iodi mitis to a pint of hot water). A gauze dressing soaked in hydrogen peroxide was then applied (hydrogen peroxide, besides being an antiseptic, is a very useful haemostatic), and a bandage was tied well above the wound. Thus for a septic hand the arm would be bandaged above the elbow, just tight enough to cause venous congestion, and left in position for twenty-four to forty-eight hours. The patient was instructed to return the next day, or later in the same day, if the infection appeared acute, when the dressing would be *soaked off* in another iodine bath and a dressing of glycerin and magnesium sulphate (equal parts) on lint or gauze would be applied.

Glycerin and magnesium sulphate dressings would be repeated three times a day for the first two days, each dressing being soaked off in a hot iodine bath, and then twice a day until the wound appeared clean and no pus was apparent, when a dry dressing of iodoform powder on lint was employed. In every case, having once made an incision large enough to allow the pus to escape, the wound was touched as little as possible. No attempt was made to express pus by squeezing, but the patients were encouraged to move the affected limbs themselves whilst they were soaking them in the bath.

The advantages of this method are: (1) The apparatus is simple, all that is required being a basin, a bottle of tinctura iodi mitis, some hot water, a bottle of glycerin and magnesium sulphate, and some gauze or lint. (2) It is comparatively painless. (3) It eliminates the necessity for hot fomentations, which are difficult to apply effectively and only transitory in their action.

Choice of an Anaesthetic.

Out of a total of fifteen cases (three Europeans and twelve Chinese) I operated on four by freezing with ethyl chloride local anaesthesia. The disadvantages of freezing are that it undoubtedly causes intense pain during the thawing process, and its anaesthetic effect is so transitory that the operator has time only for a quick stab with the knife. In three cases no anaesthetic of any sort was employed, and apart from the momentary pain of the incision, the patients appeared to experience less pain in the aggregate than those who had been subjected to ethyl chloride anaesthesia.

I also endeavoured with the last eight patients to ascertain whether nerve blocking with 2 per cent. novocain would have any effect as an anaesthetic, or whether injecting the fluid into a septic limb would have any deleterious effect on the septic condition. I found, as the following case records show, that the injection of novocain appeared to have no markedly bad effect in delaying healing, but that as an anaesthetic it gave variable results.

Case 1.—A Chinese fireman with a temperature of 100° F., pulse 100, and a history of pain in the palm of the hand for three days. There was considerable swelling of the palm and some swelling on the dorsum of the hand, the greatest point of tenderness being situated between the fourth and fifth metacarpal bones in the palm. The patient was unable to flex his fingers himself, and the movement of flexion caused considerable pain. Around the ulnar nerve, just behind the internal epicondyle of the humerus, 3 c.cm. of 2 per cent. sterile novocain were injected, and after an interval of ten minutes a vertical incision 1¼ inches in length was made over the part where there was most fluctuation. Pus was obtained. The patient appeared to feel a certain amount of pain, but less than with freezing.

After-treatment with iodine baths and magnesium sulphate and glycerin dressings was adopted, the wound healed well, and the patient returned to duty in the stokehold on the eighth day.

Case 2.—A Chinese fireman, with cellulitis of foot, temperature 101° F., pulse 100. The whole of the dorsum of the foot was red and swollen, the ankle was oedematous and its contours were eliminated. Around the external popliteal nerve, just internal to the tendon of the biceps femoris in the popliteal space, 3 c.cm. of 2 per cent. novocain were injected, and after fifteen minutes a 2-inch incision was made on the dorsum of the foot. No pain was experienced from the incision and a serous discharge was obtained. The patient was treated by the method previously outlined. The temperature remained up to 100° for four days, but after that the wound healed well. All the swelling subsided by the eighth day, and he returned to work, attending for daily dressings until the tenth day, when the wound was healed.

Case 3.—A European steward with a subungual paronychia of five days' duration on the ring finger of the right hand. Temperature and pulse were normal. Around the digital nerves 2 c.cm. of 2 per cent. novocain were injected, giving complete anaesthesia at the end of ten minutes. The whole of the nail was removed and two vertical cuts were made, one on each side of the nail bed. A hydrogen peroxide gauze wick was inserted under the flap. The wound was treated with iodine baths and glycerin and magnesium sulphate dressings. The patient was irregular in his attendances, and was never off duty, sometimes washing plates with his bad hand; in spite of this the wound healed in twenty days.

Case 4.—A Chinese fireman with septic third digit of the right foot; the toe was swollen to nearly the size of the big toe. Around the external popliteal nerve 2 per cent. novocain was injected, and after twenty minutes the patient volunteered the statement, through the interpreter, "that his foot felt quite all right, and he would like to return to work." An incision 1½ inches long was made on the dorsum of the toe; no pain was experienced during the incision; the wound was treated as described above and the patient returned to work in eight days.

Cases 5 and 6.—Both of these patients had septic fingers with swelling most pronounced over the terminal phalanx. In each case incision was made under blocking of the digital nerves at both sides of the base of the proximal phalanx; no pain was experienced. Treatment was as before, and the patients returned to work respectively four and six days afterwards.

Case 7.—Septic palm of hand, more pronounced on the ulnar side, with considerable swelling on the palmar surface and slight oedema on the dorsum of the hand. Incision was made under blocking of the ulnar nerve, and caused slight pain. The wound was treated in the usual way, and the patient returned to work in nine days.

Case 8.—Septic hand, oedema of the back of hand and swelling of palm, most pronounced between the heads of the second and third metacarpal bones. The ulnar nerve was blocked behind the internal epicondyle of the humerus, and 2 c.cm. of 2 per cent. novocain were injected under the palmaris longus tendon, two inches proximal to the first transverse crease of the wrist, in an endeavour to block the median nerve. The incision gave no pain, the wound was treated in the usual way, and the patient returned to work in seven days.

General Conclusions.

With the exception of the one steward, who took twenty days before the wound healed, and one trimmer whose finger, originally opened under ethyl chloride anaesthesia, had to be reopened, and who took twelve days before returning to duty, no man was away from his work for more than nine days, most of them for less. I believe that Cases 1 and 7 experienced some pain at the moment of the incision because I failed to realize that the median and ulnar nerves intercommunicate in their nerve distribution to the palm of the hand. In Case 8, when I blocked both the median and ulnar nerves no pain was experienced from the incision. Although gas must remain the anaesthetic of choice for cases of septic hands or feet, for a doctor who is unable to obtain an anaesthetist, or for a patient who refuses a general anaesthetic, nerve blocking with novocain should prove a satisfactory substitute.

Directly pus has formed in any situation in the hand or foot it should be given an opportunity to escape by a free incision, and the operation should be undertaken deliberately and with no attempt at hurrying. If one operates under freezing, or without an anaesthetic, there is a tendency to hurry and perhaps an insufficient incision is made. If early and deliberate incisions are made, allowing free drainage, there is less likelihood of a whitlow progressing and becoming a suppurative teno-synovitis of the forearm, or causing an osteomyelitis of the phalanges or metacarpal bones.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HAEMOPERITONEUM DUE TO SPONTANEOUS RUPTURE OF THE SPLENIC VEIN.

CASES of haemoperitoneum of unknown origin are not infrequently recorded in the literature. The following case, therefore, seems to merit publication, since such a condition was traceable to spontaneous rupture of the splenic vein associated with cirrhosis of the liver.

A woman, aged 38, was admitted to the Leeds General Infirmary at 10 a.m. on December 8th, 1928, having been seized with lower abdominal pain six hours earlier. She was extremely pale and restless; the pulse was 120, and the temperature 96° F. The respiration was slow and gasping; she was fully conscious. The abdomen was distended, and there was dullness to percussion in both flanks, but no evidence was obtained of uterine bleeding. A diagnosis of haemoperitoneum was made, the source of the haemorrhage being uncertain in view of the absence of amenorrhoea or any significant previous history. Immediate laparotomy was decided on, but unfortunately the patient died before this could be undertaken.

A post-mortem examination was made on December 10th. The abdomen was found to be full of blood, which was partly clotted, and had obviously come from the left upper abdomen. The liver was small (weight 25 oz.), and presented a grossly nodular surface. The spleen was considerably enlarged (weight 15 oz.); it was free from adhesions, and there was a single scar at the lower pole. On section it presented a normal appearance. The lesser sac contained a good deal of blood. The splenic vein was found to be enlarged, tortuous, and considerably thickened, having a mean diameter of about three-quarters of an inch. About half-way along its course there was a tiny rupture, approximately a sixteenth of an inch in diameter, which was the source of the peritoneal haemorrhage.

The liver showed a well-marked multilobular cirrhosis; there was little evidence of active destruction of liver tissue, but the fibrosis was unusually dense. The splenic pulp was increased. There was no evidence of syphilis in this case, nor was there any striking varicosity of the oesophageal or haemorrhoidal veins. The lenticular nuclei were normal.

The woman, a servant, had enjoyed apparent good health till three weeks before her death; during this period she had complained of indigestion. Her employer had noted an increasing mental dullness during the past year. It is of interest to note that several bottles of gin had been missed by her employer, and a bottle of brandy was found among the woman's possessions, but beyond this there was no definite history of alcoholism.

This complication of cirrhosis of the liver must be extremely rare, though peritoneal haemorrhages are recognized as a complication of cirrhosis by Osler[1] and others. Osler[2] mentions rupture of varicose veins as a cause of haemoperitoneum, and, quoting Ernst and Gammeltoft,[3] states that trauma is an important factor. We could discover no history of trauma in this case. An apparently similar case has been recorded by Ogilvie.[4]

We wish to thank Dr. G. L. Neil for supplying the details of the patient's previous history, and Professor Carlton Oldfield for permission to publish this case.

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APPENDICITIS CAUSED BY BILHARZIA.

IN the records of bilharzia lesions I have been unable to find any instance of appendicitis caused by this parasite. I venture, therefore, to bring forward details of such a case.

The patient, a male aged 24 years, a native of Tanta in the Nile Delta, came to this country in 1926 for educational purposes. He had had typical vesical bilharziasis in 1920. He then received the greater part of a course of injections (presumably of tartar emetic), but discontinued the course when the symptoms subsided. Although there was no recurrence he underwent a complete course of injections in 1926, before coming to this country, and was told that he could consider himself cured. He had never shown any signs of involvement of the intestinal tract.

He remained well until December, 1927, when he had an attack of abdominal pain with a rise in temperature (100° F.). The tenderness was not localized to any part of the abdomen. He was very constipated. Enemata relieved the condition at once. The temperature subsided and the abdominal symptoms disappeared. The spleen was not enlarged.

In March, 1928, he had a similar attack, though more severe. There was slight rigidity of the right rectus muscle, and the site of maximum tenderness was at McBurney's point. He was again very constipated, and when this was relieved by enemata all the symptoms subsided. The question of removing his appendix was discussed, but the operation was not performed.

On June 12th, 1928, a third and still more severe attack commenced. He had acute abdominal pain, at first round the umbilicus, but soon settling down in the right iliac fossa. There was rigidity of the right rectus muscle. The abdomen was distended. He vomited twice. In spite of previous warnings he was again very constipated. When enemata had been administered the acute symptoms subsided, but some tenderness and slight rigidity over the appendix persisted. Mr. T. Carwardine was called in, and it was decided to remove the appendix. The operation was performed on June 27th. The appendix was bright red and still showed signs of acute inflammation. Several small white nodules, similar to tubercles, were noticed on the serous aspect. Professor Walker Hall kindly examined the organ microscopically and reported that the appendicular wall showed areas of fibrosis and contained many ova of *Schistosoma haematobium*. Some of the older ova were calcified. Round the groups of ova were signs of acute inflammation, the tissues being infiltrated with small round cells and the blood vessels engorged. There was not any evidence of pyogenic organisms, or of tubercle or actinomycosis. The only apparent cause for the acute inflammatory attack was the ova of the parasite. The ova were seen passing through the mucosa, as well as blocking the lymph canals of the submucosa. Some had penetrated the muscular layer and occasioned the formation of round, fibrous, and calcified nodules just under the peritoneal surface. Examination of the urine and faeces showed no ova. The faeces contained a small quantity of blood and excess of mucus. The blood count showed a marked eosinophilia—12 per cent. of the total white count.

It follows from the fact that many of the ova seen in the sections are fresh that the patient is still harbouring active

[1] Osler and McCrae: *Modern Medicine*, third edition, vol. iii, 813.
[2] Ibid., 907.
[3] Ernst and Gammeltoft: *Acta Gyn. Scandinav.*, Upsala, 1921, 2, 104.
[4] W. H. Ogilvie: *Guy's Hospital Reports*, 1922, lxxii, 219.

adult trematodes, which are presumably localized in the appendix area. Serial sections did not reveal the presence of adult forms, although there was a cavity with appearances of parasitic origin.

The patient made an uninterrupted recovery from the operation.

In *Archives of Pathology*, vol. 6, and again in the number for May, 1926, A. Plant has articles on this subject. He records a case of bilharziasis in an apparently normal appendix which gave no symptoms. He points out that though the spines appeared in sections to be terminal, it was found that they were lateral when the tissues were dissolved out with potassium hydroxide.

I am indebted to Mr. Carwardine for the surgical treatment and advice, and to Professor Walker Hall for the pathological work and advice.

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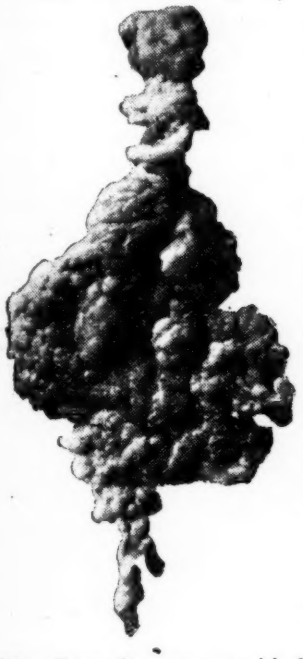
ABDOMINAL TORSION OF THE OMENTUM.

IN view of the rarity of this condition the following case seems worthy of publication.

A married woman, aged 32, was admitted to hospital complaining of abdominal pain of two days' duration. Her temperature was 100° F., pulse rate 104, respirations 20. Mastitis had followed a confinement three years previously, and the patient had become much stouter during the four or five years prior to admission.

Whilst stooping at her washtub one morning the patient became conscious of a dull aching pain in the lower part of the abdomen on the right side; the pain was less severe when she stood up. She continued her work until 4 p.m., notwithstanding an increase in the severity of the pain. A restless night followed. Homely remedies, such as hot poultices, only relieved the pain very slightly. The pain continued during the next day, when she was seen by her medical attendant and sent to hospital.



On examination the patient was found to be very obese. The pain, which was continuous and located in the right iliac fossa, was of a dull, aching character, with exacerbation on movement. There was loss of appetite, but no vomiting. The bowels were opened on the day of admission. The tongue was clean and moist. Tenderness was elicited to the right of the umbilicus, and there was rigidity of the right rectus abdominis muscle below it; no mass was palpable. Nothing abnormal was detected elsewhere, and a provisional diagnosis was made of subacute appendicitis.

That evening a right paramedial incision was made below the umbilicus, and the rectus muscle was retracted laterally. When the peritoneum was picked up and incised a small quantity of blood-stained fluid welled up through the incision. No mass was found in the appendix region, and the appendix showed no signs of inflammatory process. On passing the hand upwards to examine the gall-bladder a firm mass was encountered, lightly adherent to the anterior abdominal wall below and to the right of the umbilicus. The mass was easily freed and pulled down into the wound, when the nature of the condition became apparent. The mass consisted of a portion of very congested omentum dependent by a narrow pedicle, which was twisted twice in a clockwise direction. There was no bowel in the mass. The pedicle was transfixed, tied, and divided; appendicectomy was then performed. Further exploration failed to reveal the presence of a hernial opening, or of any pathological condition in the pelvis.

The subsequent progress of the patient was uneventful.

The etiology of this condition is the subject of controversy. Bayer and Baraz[1] state that there are usually found two points of support around which the omentum can revolve to produce the strangulation. This theory is supported by the frequent association of torsion of the omentum and the inflammatory changes in the appendix.

The specimen removed in the present case shows a long fine projection of omental tissue at the base of the strangulated mass. At the time of operation this band was not observed to be adherent, but such an adhesion, if present, might easily have been broken through in the manipulations to deliver the appendix and caecum.

The case reported illustrates the common findings in this condition as summarized by Cowell.[1] Attention might be drawn to the facts that (1) the pain was first felt in the right lower abdomen, and not around the umbilicus as in appendicitis; (2) there was no nausea and vomiting, and the anxious facies associated with acute disease of the intestinal tract was absent.

I am indebted to Mr. Kenneth Fraser for permission to publish this case.

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[1] Quoted by Wiener, *Annals of Surgery*, 1900, 2, p. 648.

[1] *Brit. Journ. Surg.*, 1925, xii, p. 738.

Reports of Societies.

STERILIZATION OF THE MENTALLY UNFIT.

AT a meeting of the Medico-Legal Society on April 25th, with Sir WILLIAM WILLCOX in the chair, a paper was read by Lord RIDDELL on the sterilization of the unfit.

Lord Riddell quoted from the report of the Board of Control the numbers of notified insane persons and mental defectives, and from the recent report of the Mental Deficiency Committee[2] the estimate that the total number of defectives of all ages is 300,000, and that institutional accommodation is required for 64,000, as well as residential special schools for 23,000 feeble-minded children. He quoted also from official documents some histories of mental defectives, showing how to parents, one or both of whom were feeble-minded, had been born four, five, or six children, all of them imbecile or of a low grade of mentality. He recited particulars of seventeen cases in the courts during the last two years in which mentally deficient persons had been charged with serious crime. Lord Riddell then took up the statement of the Board of Control that the marriage of defectives had disastrous consequences to the community, and that the time had come when legislative steps should be taken to prevent such unions. While this was obvious, Lord Riddell thought that the fact was overlooked that people of this class did not pay much attention to the sanctions either of Church or Law. The sexual instinct was very powerful amongst mental deficients, who were also extraordinarily persistent and clever in eluding observation, and reproduced their kind far more rapidly than the mentally sound. The Board relied on segregation as a curative, protective, and palliative measure, and trounced the local authorities for neglecting to supply institutional accommodation. What about the cost of such a policy? Lord Riddell entered upon some calculations to show that the additional institutional accommodation called for by the Mental Deficiency Committee would involve a capital expenditure of 29 millions, and that the annual expenditure, representing the cost of maintenance of these feeble-minded persons, including those for whom provision is already made, as well as the notified insane, worked out at 16 millions. Could the community afford to spend so much on a section of the population obviously of the worst type. "Unless we are careful, we shall be eaten out of house and home by lunatics and mental deficients."

The alternative seemed to him to be sterilization, though he admitted that this would not be a complete solution, nor do away with the necessity for a certain amount of segregation. It would, however, effectively prevent the defectives from reproducing their kind, as they were doing at present at the rate of some 2,500 a year. The Board of Control considered that sterilization would not materially diminish the immediate need for increased institutional accommodation; defectives would still require supervision. The Board, said Lord Riddell, was entitled to sympathy. Evidently it did not want to "bell the cat." It perceived the dangers, but was afraid to cope with them. The truth was that the existing system was incoherent and illogical. On the one hand, the Board was demanding more and more institutions; on the other, its

[2] *British Medical Journal*, April 27th, p. 775.

policy was to return as many lunatics and mental defectives as possible to the outside world. Year by year, with the best intentions, it provided opportunities for lunatics and defectives to breed more lunatics, defectives, and criminals. But sterilization would enable the Board to carry out its policy of parole, discharge, and licence with more freedom and with greater safety to the community. The Royal Commission on the Feeble-minded in 1908 made no recommendation, one way or the other, as to sterilization, which was not surprising; but during the intervening twenty years much more information had been forthcoming. It was now universally admitted that mental defectives tended to breed mental defectives, and it had been proved that segregation was no safeguard against procreation. Moreover, sterilization methods since then had been revolutionized. Vasectomy and salpingectomy were not mentioned by the witnesses appearing before the Royal Commission, the methods suggested at that time being equivalent to castration. Again, economic forces, conditions of modern life, and the birth control campaign had changed the public view with regard to the procreation of children. Lord Riddell said that the measures now proposed were very moderate. Sterilization was to be with the consent to the person concerned, or, if he was under age or incapable of consent, with the consent of his parents or guardians. As the law stood, the sterilization operation was only permissible when performed for some adequate therapeutic reason, and though some might argue that lunacy or mental deficiency was a sufficient therapeutic reason, the authorities who controlled asylums and mental institutions were not likely to take the risk.

To the arguments against interference with individual freedom Lord Riddell replied that not only was the operation to be performed with consent, but that instead of restricting the liberty of lunatics about to be discharged or released on parole, it would increase such liberty by enabling them to assume marital relations without fear of producing undesirable offspring. In any case, individual liberty was constantly being restricted for the safety of the community—witness compulsory vaccination and compulsory segregation in infectious disease. It was argued that sterilization would lead to promiscuity and the spread of venereal disease, but it was not proposed to turn the sterilized lunatics and defectives loose on the community; they would still be subject to a measure of supervision. It was also said that sterilizing operations were dangerous, but in fact vasectomy, which was the usual method for men, was simple and called only for a local anaesthetic. Salpingectomy, the usual method for women, was a major operation, and, like any abdominal section, involved a certain amount of risk. Lord Riddell, however, quoted some figures from California, where sterilization had been in vogue since 1909, nearly 6,000 operations—3,232 on men and 2,588 on women—having been performed. Among these there had been only three deaths, two of them said to have been due to the administration of the anaesthetic. Vasectomy and salpingectomy did not deprive the patient of sexual functions, and it was proved that there was very little change in the sexual inclinations; the procedure only prevented the procreation of offspring. All that was asked was that, subject to proper consents, mental deficients, for their own benefit and that of the community, should undergo an operation which many intelligent people were anxious—as the speaker thought, illegally and improperly—to undergo as a birth control measure. One of the Swiss cantons last year passed a statute prescribing compulsory sterilization for persons whose offspring were likely to be tainted with incurable mental malady. Similar legislation had been passed in Alberta, and sterilization had been recommended by official committees to the Swedish and New Zealand Parliaments. The result of these experiments would be awaited with interest. Lunacy and mental deficiency must always be festering sores, but the time had come when the whole subject required careful consideration and statesmanlike attention.

Following the paper there was a somewhat sporadic discussion in which Lord Riddell's proposals found a considerable body of support, though the objections to sterilization were also put forward.

TREATMENT OF GLYCOSURIA.

A MEETING of the Section of Medicine of the Royal Society of Medicine was held on April 23rd, with Dr. A. F. HURST in the chair. Dr. O. LEYTON read a communication on the question "How are we to decide whether a case of glycosuria is one that should be treated?"

Dr. Leyton said that long before there was any reliable method of estimating the sugar in the blood some physicians had recognized that there were cases of glycosuria in which the sign might be neglected. Later, Saloman contributed an explanation by discovering that some persons had a low renal threshold for dextrose, and excreted that substance in the urine without having a concentration of sugar in the blood above the normal average. Most of those who possessed this peculiarity passed urine containing a low percentage of sugar, usually under 2 per cent. The speaker's experience confirmed the statement of MacLean—that a certain number of patients developed a brief hyperglycaemia after taking dextrose by the mouth, the concentration of sugar in the blood rising sufficiently to lead to a temporary glycosuria in those whose renal threshold for sugar was not below the average. In these cases the fall of the sugar concentration in the blood was rapid and complete within ninety minutes. The object of Dr. Leyton's communication was to draw attention to a condition which at first sight suggested that it was a glycosuria calling for treatment, since it was a hyperglycaemic glycosuria. It was a condition which everyone must have expected to exist, but so far as he knew attention had not been drawn to it. The elaboration of more delicate methods of determining the sugar in the urine had necessitated a new definition of glycosuria. For some years the speaker had attempted to determine the rate at which individuals burnt and/or stored carbohydrate in the following manner:

> The patient is kept fasting for about fifteen hours—that is to say, he has a breakfast consisting of a cup of tea without milk or sugar, having had nothing to eat since the previous evening. He is then given 60 grams of dextrose dissolved in 250 c.cm. of water, to which a little lemon juice has been added. The sugar in the blood is estimated before he takes this, and then samples of blood are taken at intervals of half an hour; immediately after the taking of the samples of the blood the bladder is emptied. This is continued for three hours. After estimating the concentration of sugar in the blood one is able to decide how long it has taken for the sugar in the blood to drop to what it was before the administration of the dextrose or to the level of 0.12 per cent., whichever is the quicker. The urine secreted during this period is next measured, and the amount of sugar and of urea in it is estimated. The object of estimating the urea is to determine how much protein has been destroyed and the quantity of carbohydrate that has been liberated by its destruction. By multiplying the weight of the urea excreted by the factor 1.7 the weight of sugar is arrived at.

The average young healthy person was able to burn and/or store about 50 grams per hour, but it was not safe to assume that if an individual was able to burn and/or store only 25 grams per hour he was therefore suffering from a disease. Dr. Leyton described cases to prove his point that the power of burning and storing sugar varied in different healthy persons, and that it was only the gradual diminution in this power which called for treatment, provided that there were no symptoms present in the cases not treated; also that in doubtful cases the only method of deciding whether that power was diminishing was that of allowing the patient to throw normal work upon the carbohydrate metabolism for a period, and re-examining and comparing results. If there was a definite diminution in the power of metabolizing sugar, then, and then only, was the case one of glycosuria that needed treatment. Dr. Leyton explained how these observations had borne fruit in his own practice. The main object of his communication was not simply to release a certain number of individuals from a restricted diet, but to correct what he called a "refraction" in the outlook upon the treatment of hyperglycaemic glycosuria. When a physician had several of these cases under treatment, and by restriction of their diet found them to continue to enjoy almost as good health as if they were allowed to eat and drink whatever they liked, he attributed their well-being to his skilful dieting, and was inclined to think that other cases which did not

belong to this class should do equally as well. Owing to this, many slight cases of disease were not treated with insulin until the damage to the pancreas had become irreparable.

Dr. E. P. POULTON suggested that one criterion might be taken for the classification of these cases—namely, that the patient might be put upon increasing quantities of carbohydrate and tested at each increase. For example, let 30 grams be given in the first instance, and the sugar output determined, then 60 grams, and again the sugar output, and so on; if the increase in the sugar output was out of all proportion to the amount given, it would create a strong suspicion that the patient had true diabetes.

Dr. R. D. LAWRENCE had always been struck by the number of cases in medical literature which seemed to give at least mild diabetic curves, while yet the disease did not seem to make progress, although no dieting had been maintained. But he thought it was hardly justifiable to draw conclusions from these cases with regard to the general run of blood sugar curves.

Dr. SAXBY WILLIS thought that in some cases instanced by Dr. Leyton an abnormality of the pituitary gland might be the cause of the hyperglycaemia—that is to say, they might be pituitary in origin, not pancreatic.

Bovine Tubercle Bacilli in Pulmonary Tuberculosis.

Dr. W. T. MUNRO read a paper based on work at the Fife and Kinross (Glenlomond) Sanatorium, on the occurrence of tubercle bacilli of the bovine type in pulmonary tuberculosis and the part played by this type in pathogenesis. Dr. Munro said that the recovery of bovine type tubercle bacillus from the sputum was sufficiently rare to command attention. Observations at Glenlomond during the past seven years had led to the discovery of ten cases of patients coughing up the bovine type of tubercle bacillus. Four of these patients with pulmonary tuberculosis of the bovine type showed root-spread disease; one of them had died, two were now free from infection, and the other, a more recent case, was making good progress. Of the total of ten patients, six were alive, four of them free from infection. The most notable features present in all these cases were the amount of the fibrotic changes, the lack of evidence of large breaking down of lung tissue, and the entire absence of haemoptysis. There seemed to be more chance of these patients overcoming their systemic disturbance than was to be found in the similar group of human type infections. Why were bacilli of the bovine type so rarely found in the sputum? He thought it a reasonable argument that the bovine type was not capable of such a general lymphatic spread as the human type in the human subject. Various facts combined to suggest that the bovine type was not capable of generalization or of producing visceral tuberculosis to the same extent. Superinfection with the bovine type leading to chronic ulcerative pulmonary tuberculosis was unlikely unless the superinfecting dose was very large; or, in other words, the allergy occasioned by the previous benign infection could protect against superinfection by the bovine type, but broke down in the presence of the human type of bacillus. He raised the further question whether the disease could have been contracted from an aerogenous infection in any of these cases, and gave reasons for the view that it was most unlikely that the superinfection was air-borne. Whatever the common route of the infection might be, there was little doubt that in most of these cases the route was through the tonsils and cervical glands. His final question was: Could the superinfection producing pulmonary disease have been other than endogenous in origin? He had never been able to find a bovine type in the gland and a human type in the lung, and the evidence on the face of it in these bovine type cases was that the superinfection must be endogenous.

Dr. F. G. CHANDLER said that Koch's hasty dictum regarding the harmlessness of the bovine bacillus had probably impeded preventive medicine. He had often wondered why, if bovine tuberculosis of the lungs in the human being occurred at all, it did not occur more often; one was almost tempted into believing that transmutation of type might occur by long sojourn in the human body, which would be a heresy, against which there was abundant evidence. He believed that air-borne infection was probably the most common mode; and this raised another interesting aspect of the case—namely, that when once a human being was afflicted with a bovine pulmonary tuberculosis, the occurrence of air-borne infection to others became a possibility. Dr. Chandler also commented on the fact that, according to all investigations, a larger proportion of cases of bovine tuberculosis were reported from Scotland than from England, and he wondered whether in the northern country the cows were more subject to the disease.

Dr. MUNRO, in reply to this last point, said that there was not more bovine tuberculosis in Scotland than in England, but the Scottish authorities had been more zealous in searching it out.

CONGENITAL ANOMALIES OF THE URETER.

AT a pathological meeting of the Liverpool Medical Institution on April 11th Mr. C. ALEXANDER WELLS read a paper on congenital anomalies of the ureter. After referring briefly to the embryology, Mr. Wells described a series of observed cases in which he had prepared diagrams of the cystoscopic appearances and lantern slides from radiograms. These cases included five examples of reduplication of the ureter on one side, and Mr. Wells pointed out the importance of recognizing the occurrence of this abnormality, and of instituting adequate investigation in order to avoid mistakes in diagnosis—such, for instance, as passing an opaque catheter up a healthy ureter, some distance away from the doubtful stone shadow, when a second instrument passed along the second ureter on the same side would demonstrate its true nature. Mr. Wells described briefly the morbid anatomy of the kidney in these cases, and, after passing rapidly over congenital cystic kidney, simple and crossed dystopia, and unilateral absence of the kidney, dealt with the subjects of congenital dilatation of the ureter and ureterocele. He showed cystoscopic and radiological findings in the case of a boy, aged 3, with enormous dilatation of both ureters and of their pelves and calyces, without any demonstrable obstructive lesion—in fact, widely patent ureteric orifices on both sides, conforming to the recognized though rare type. He further submitted two adult cases which, he said, were representative of the segmental congenital dilatation of certain authors, and described, in connexion with these cases, a reflux of the bladder content up the ureters, synchronous with respiratory movements and indicated by the excursions of a flake of mucus. He suggested that this sign was characteristic of a more or less dilated ureter associated with a fixed patent orifice, and added that he had noticed it also in tuberculous infection of the ureter. The paper concluded with the recording of two cases of ureterocele or ureteric balloon. In the discussion which followed Mr. FRANK JEANS spoke on the pitfalls associated with congenital absence or misplacements of one kidney. Dr. NORMAN B. CAPON referred to two cases of congenital dilatation of the bladder and ureters described by him, in association with Dr. Fordyce, some years ago. Mr. KENNON doubted the congenital nature of the segmental dilatations. Dr. J. T. MORRISON mentioned the difficulties of diagnosis due to disease complications of these anatomical variations, and described a case of calculus occurring in a ureterocele.

AT a meeting of the Royal Society, on May 2nd, a paper on the loss of water and salts through the skin and the corresponding physiological adjustments was communicated by Dr. J. S. HALDANE and Messrs. W. HANCOCK and A. G. R. WHITEHOUSE. Sir FREDERICK ANDREWES presented a paper by Drs. R. G. CANTI and F. G. SPEAR, on the effect of gamma irradiation on cell division in tissue culture. Dr. H. H. DALE communicated a paper on the absorption spectrum of vitamin D, on behalf of Dr. R. B. BOURDILLON and Messrs. C. FISCHMANN, R. G. C. JENKINS, and T. A. WEBSTER.

Reviews.

MANSON'S TROPICAL DISEASES.

THE issue of a new edition of *Manson's Tropical Diseases*[1] is always an event of importance in the field of tropical medicine, for the book is read by students and practitioners in all parts of the world, and the number of medical men who rely upon it in the course of their practice in the tropics must be very great. During the five years which have elapsed since the eighth edition appeared there have been many changes and developments in tropical medicine, particularly with reference to diagnosis and treatment. A perusal of the ninth edition will convince the reader that the editor, Dr. PHILIP MANSON-BAHR, is well fitted to carry on Manson's great work. He has kept himself informed of all developments, while his experimental enterprise has led him to test and judge for himself any new methods of treatment and diagnosis. His extensive experience enables him to write with authority, and this forms one of the most valuable features of the book, which provides the reader with a clear, accurate, and up-to-date account of the present position of tropical medicine.

The ninth edition differs little in size from its predecessor, though much new matter has been introduced apart from the thirty new text figures and five half-tone and four coloured plates. This has been rendered possible by much rewriting and abridgement, and the judicious use of small type for certain sections. The book is of convenient size, well printed, and carefully selected subjects are beautifully illustrated. The general arrangement and classification are the same as in the previous editions, though certain changes have occurred. Thus, the recent work on yellow fever, largely the outcome of the discovery that the disease can be transmitted to the monkey *Macacus rhesus*, has necessitated its separation from the leptospiral infections such as Weil's disease and seven-day fever. The facts that the virus is a filterable one and not a leptospira, and that there is a possibility of protection by vaccination, are duly noted. Noguchi's work on Oroya fever and verruga peruana and his cultivation of the causative agent *Bartonella bacilliformis* is described, as also the allied organism *Bartonella muris*, which appears in the blood of rats after splenectomy. Mention is made of Kingsbury's researches on haemolysis in malaria and their bearing on the etiology of blackwater fever. The important work on the relationship of sand-flies to kala-azar which has been carried out in India and China has required the revision of the section on the etiology of this disease. Under treatment many new remedies and methods are described. The recently introduced plasmoquine for malaria, and Sinton's alkaline quinine method of treatment, are discussed. Good results are reported from transfusion in intractable cases of sprue, while Scott's calcium lactate and parathyroid method is also mentioned. In connexion with kala-azar the developments in organic antimony therapy are duly noted, while the advances in the chemotherapy of amoebic dysentery, leprosy, yaws, and other diseases are fully dealt with. In all cases precise details for carrying out treatment are given, so that practitioners will have no difficulty in following the instructions given. In many other sections there have been changes and additions. Thus, the general methods of malarial prophylaxis are more fully dealt with, and in this connexion mention is made of the value of Paris green, while James's method of infecting mosquitos with malaria is illustrated and described. The improvements which have taken place in the diagnosis of helminthic infections by the complement-fixation test are duly noted, while recent work on the influence of vitamins in beri-beri and other deficiency diseases has not been overlooked.

The above are merely a few of the many changes which recent advances and discoveries have necessitated in this new edition, but they illustrate the thoroughness with which the editor has done his work. The appendix of two sections on medical zoology has been revised, and in it the reader will find all the essentials of medical protozoology, helminthology, entomology, herpetology, and laboratory technique. The book is unique in that there exists no other of its size which gives the reader such a vast amount of practical information regarding the diseases of tropical lands and the methods of dealing with them. It should be in the hands of everyone who practises medicine in the tropics, and it is certain that everyone who has it will be constantly referring to it for guidance and instruction.

[1] *Manson's Tropical Diseases.* Edited by Philip H. Manson-Bahr, D.S.O., M.D., D.T.M. and H.Cantab., F.R.C.P. Ninth edition, revised. London: Cassell and Co., Ltd. 1929. (Demy 8vo, pp. xx + 921; 400 figures, 35 plates. 31s. 6d. net.)

MIND AND BODY.

IN a volume entitled *Common Principles in Psychology and Physiology*[2] Dr. JOHN T. MACCURDY makes it his aim to show that the relationship between the psychological and the physiological is not merely one of analogy, but of an essential element common to both. To this abstract, impalpable, immaterial agent, element, or property, which the author assumes may be held accountable for the differences between living and inert matter, he applies the term "pattern"—physiological, psychological, or developmental, according to the level of behaviour at which the manifestations of life are exhibited.

Though the author's formulations are by no means free from obscurity, they well repay careful study on the part of those who are interested in the ultimate problems of life and mind. Any serious attempt to bridge the gap between the psychological and physiological activities of the organism, and to suggest a common terminology, merits consideration. There is a tendency to think of physiological and mechanical behaviour under one head, and "mental" behaviour under another. It would certainly appear to be more in conformity with facts to consider inorganic reactions under one head, and physiological and "mental" under another, for the distinction which is apt to be drawn between physiological activity and overtly manifested conduct, associated with consciousness, does not seem to be justified. Psychology deals with additional facts about the living organism with which physiology is not concerned, but it cannot be held to deal with phenomena of an essentially different order. In their last analysis the physiological activities of the organism are not more impressive and remarkable than those of the individual. It is highly probable, indeed, that the medical practitioner may sometimes feel that the "wisdom of the body" is in striking contrast to the foolishness of the man. Thus it seems essential for us not to think of mind and body, of mental and physical, but of the living being and life. Nor can consciousness be relegated to the position of an epiphenomenon; it is a manifestation of life which is possibly dimly present in the lowliest forms of organism. Many writers have expressed similar views. Thus, Dr. C. S. Myers observes, "The problems of life that confront the physiologist are almost precisely those of mind which confront the psychologist. Life and mind must ultimately be described in similar terms." What these terms are is the problem which Dr. MacCurdy sets himself to answer, and apart from certain elusive differences his answer appears to be similar to those suggested by various other writers, for it is essentially his claim that it is the reappearance of the past in the present which differentiates the organic or living from inorganic nature. Like Bergson in the sphere of philosophy, and Semon and Rignano in that of biology, Dr. MacCurdy believes that evidence of the inherency of the past is to be found in the present at both the psychological and the physiological level of behaviour, and that it is this characteristic which distinguishes living from inert matter.

We do not wish to suggest that Dr. MacCurdy's formulations are identical with those elaborated by other writers. He does not accept the view of Semon, for instance, that the impress of experience is some kind of a physical alteration of protoplasm, and that the *mneme* and memory are reducible, fundamentally, to physico-chemical laws. On the contrary, he assumes the existence of unconscious immaterial images—immaterial in the same way that conscious images are immaterial—and develops this concept throughout his book, applying it not only to the whole

[2] *Common Principles in Psychology and Physiology.* By John T. MacCurdy, M.D.Johns Hopkins. The Cambridge Psychological Library. London: Cambridge University Press. 1928. (Roy. 8vo, pp. xvii + 234. 15s. net.)

range of phenomena of psychology, but to the whole range of physiological phenomena as well. Thus this work is, in a considerable measure, a definitely personal contribution to the subject with which it is concerned. In order to grasp the ideas of the writer a cursory study of his book will be found inadequate.

A VENERABLE TEXTBOOK OF PHYSIOLOGY.

A FEW textbooks of science there are which seem, themselves, to be the very stuff of which their subject is made. They belong to their science; they have grown up with it; they have grown old in its service—yet have not lost their youth. Such a book is Halliburton's *Physiology*.[3] Born into a world where laboured Claude Bernard, Ludwig, Liebig, and other "fathers" of modern physiology, this textbook, with the maiden name of *Kirke's Physiology*, has lived through thirty-one editions, and to-day meets us "completely revised," authoritative, venerable—but with no signs of senescence, none of that irritability which may come with age, no weariness of the flesh.

It was a happy thought of the publishers to preface the present edition with a brief unostentatious historical note. *Kirke's Physiology* appeared first in 1848 as a comprehensive work based upon the lectures of Sir James Paget at St. Bartholomew's Hospital. It rapidly won the regard of medical students, and during fifty years passed through thirteen editions, under the editorship of a succession of teachers at this great school of medicine. At the end of the last century, however, the long association with "Bart's" was severed, and the book became Halliburton's *Physiology*. Under the care of Professor W. D. HALLIBURTON a further seventeen editions have been published in a quarter of a century. With the retirement of Professor Halliburton from active teaching, however, a period of four years elapsed without revision of the text, but now continuity is assured by the appearance of the present edition. In the preparation of this the author has had the assistance of Professor R. J. S. MCDOWALL, his successor in the chair of physiology at King's College.

"There have been considerable rearrangements, both in the order of the chapters and within the chapters. Some have been rewritten, for instance, many on the Nervous System, so as to bring Reflex Action up to date, and to admit of adequate treatment of Postural and Conditioned Reflexes. The sections on the Autonomic Nervous System, Speech, the Control of the Circulation, the Carriage of Carbon Dioxide, the Maintenance of Body Neutrality, the Vitamins, Ductless Glands, and Intermediate Metabolism are also for the most part new. Additions have been made on the following subjects: the Formation of the Blood and the Bile, Test Meals, Blood Groups, the Polygraph, recent work on the Spleen and the Control of Respiration, the effects of Exercise on the Respiratory Exchanges, and other matters. To admit of this new material anatomical detail has been reduced, but essential anatomy and histology are retained. Particular stress has been laid upon the requirements of the medical student by omitting less essential details and emphasizing principles."

This is certainly a generous revision, and the senior author acknowledges his indebtedness to Professor McDowall for the greater part of the new material. It is a pleasure to record that the well-balanced and careful presentation of the latter gives ample assurance that the cloak of teacher has fallen upon shoulders which can carry it with authority. The book has actually been reduced in size. It is an interesting reflection that it contains only two hundred pages more than the first edition, which appeared eighty years ago, when, as we are inclined to think, physiology was very young and very ignorant. There is little more that a reviewer may usefully add save the suggestion that there are occasions when it is meet that we should praise famous books and their authors. Physiology has been fortunate in her teachers. But in the group of famous names which come to mind there can be none more familiar to English-reading students than that of Professor Halliburton. During the twenty-nine years of his editorship more than one hundred thousand copies of this book have been worn thin in the service of students. This tattered army were monument enough.

[3] *Handbook of Physiology.* By W. D. Halliburton, M.D., LL.D., F.R.C.P., F.R.S., and R. J. S. McDowall, M.B., D.Sc., F.R.C.P.Ed. Eighteenth edition. London: J. Murray. 1928. (Med. 8vo, pp. xxiii + 902; 503 figures, 4 plates. 18s. net.)

LEUCOPLAKIA AND KRAUROSIS OF THE VULVA.

THE differentiation of leucoplakia and kraurosis from one another and from allied conditions of the vulva is still so far uncertain as to make the clinical and pathological study by Sobre-Casas and Carranza of Buenos Aires well worth attention by gynaecologists.[4] It is published as a monograph, the greater part being occupied by photographic and coloured reproductions of the naked-eye and histological features of cases selected from the forty-five under their observation, together with many case records. There are also several drawings illustrative of the surgical procedures advocated in treatment. The chief points the authors set out to make are that these conditions run into one another, so as to be scarcely distinct as clinical entities, that both are precancerous and therefore both call for radical treatment. The etiological steps are regarded by them as prolonged and intractable pruritus, leucoplakia, kraurosis, and finally epithelioma of the vulva.

Chronic irritation with infection of superficial abrasions gives rise to a chronic dermatitis, showing hyper- or parakeratosis, with hyperaemia and leucocytic infiltration of the corium and subsequent desquamation of the horny layer and retraction of the tissues: this has been generally accepted as the explanation of leucoplakia. In order to distinguish it from those conditions in which the primary cause appeared to be more a regressive atrophic change—that is, kraurosis—emphasis was laid on the thinning and retraction of the tissues and the more marked contraction of the introitus with little tendency to ulceration and malignant change. The view of these workers, based on their clinical and pathological investigations, is that it is better to regard a leucokraurosis as a condition in which, from divers causes, the skin area may be affected in either or both of these directions. They advocate radical removal in cancerous cases by excision of vulva and thoroughgoing removal of the inguinal and femoral lymph glands, even to the extent of removing those which run up the iliac vessels. Radium and deep x rays are employed only as a palliative in inoperable cases or as a measure additional to surgical treatment. The operative treatment must, however, be modified to meet the special features of the case. Because a chronic pruritus without obvious cause and rebellious to treatment produces severe disability often leading to mental disorder, and may be the first stage in a precancerous leucokraurosis, vulvectomy about the age of the menopause is advised, both on curative and prophylactic grounds, but without extirpation of the lymph glands.

EXPERIMENTAL NEUROLOGY.

THE appearance of Dr. E. A. SPIEGEL'S book on experimental neurology[5] emphasizes the change which has been taking place during the past fifteen years in the methods of neurological research. The microscope which physicists had contributed towards the furtherance of our knowledge of the minute structure of the central nervous system has been developed to the limit of its resolving power. Chemists may still elaborate stains of more delicately selective action to aid our study of morphology, but the examination of serial sections has probably already supplied most of the information available from this source. Other avenues of approach to the subject are being opened up, and if it is to bacteriological and biochemical methods that we turn for light upon the cause and course of neurological diseases, it is from experimental medicine that we may expect an explanation of their signs and symptoms.

In making readily accessible in this volume most of the physiological work and methods which have a bearing upon this subject Dr. Spiegel has rendered valuable service. The task of selecting the pertinent data from all this material and using them for the interpretation of clinical

[4] *Leucoplasie et Kraurosis Vulvaires.* Par C. Sobre-Casas et Felipe F. Carranza, Préface du Professeur J.-L. Faure. Paris: Masson et Cie. 1928. (Med. 8vo, pp. 120; 26 figures, 2 plates. 30 fr. sans majoration.)

[5] *Experimentelle Neurologie.* Von E. A. Spiegel. Physiologie und Pathologie des Nervensystems, Erster Teil. Berlin: J. Karger. 1928. (Sup. roy. 8vo, pp. x + 281; 69 figures. M.24.)

observations is one of quite a different order. The temptation to use such data in circumstances where their applicability is not well substantiated is one which the author has in most cases avoided. This has been easier because he has been concerned with presenting all views for consideration rather than with discriminating between them, and in spite of the number and variety of his own researches he has retained an absence of bias which will greatly help towards the undoubted success of this monograph.

METHODS AND PROBLEMS OF MEDICAL EDUCATION.

THE Division of Medical Education of the Rockefeller Foundation, of which Dr. R. M. Pearce is the director, in its series of *Methods and Problems of Medical Education*, is doing great service to the teachers and administrators of medical schools and hospitals by providing them with detailed descriptions of laboratories and clinics in almost every part of the world, especially of those which have been recently organized and equipped.

The tenth series[6] contains no fewer than thirty-three articles, dealing with the teaching of hygiene, pathology, pharmacology, physiology, anatomy, and medicine, and with medical libraries. The physiological departments described include those of the Universities of Alberta in Canada, Debreczen in Hungary, Milan, Berne, Concepcion in Chile, Illinois, and Leeds. An account is given of the teaching of hygiene in the Universities of Alberta, Jassy in Rumania, Yale, and Pennsylvania, in the Royal Hungarian University of Pécs, and in the Western Reserve University at Cleveland, Ohio. Four pathological departments are described—namely, those of the Universities of Illinois, Prague, Florence, and Leeds—and departments of pharmacology at the Universities of Alberta, Tübingen, Pécs, and Illinois. Dr. Tadasu Saiki gives an account of the activities of the Imperial Government Institute for Nutrition at Tokio, and Principal G. H. Macalister of the buildings and departments of King Edward VII College at Singapore. Members of the British Medical Association will be specially interested in the description of the building and equipment of the faculty of medicine of the University of Manitoba, which is situated at Winnipeg, the city in which is to be held the 1930 meeting of the Association. All the articles are, as usual, generously illustrated by photographs and plans.

The eleventh series[7] contains twenty-two articles, all but two of which deal with clinical departments. Professor Howard T. Karsner gives an account of the diagnostic laboratory of the Cleveland City Hospital, in which the principle of centralization has been adopted with success. His colleague, Professor Elliott C. Cutler, in the course of an article on the education of a surgeon, expresses the view that surgery is perhaps more fortunate than its esteemed partner, medicine, in that, being almost utilitarian, it has less time for philosophy, and finds it is simpler to avoid the larger fluctuations of educational fashion. Further articles deal with the surgical clinic at the University of Königsberg, with the medical clinics at Breslau, Düsseldorf, Strasbourg, the Johns Hopkins Hospital, and Cornell University, the out-patient departments at the London Hospital and at the Johns Hopkins Hospital; and of ophthalmic, dermatological, oto-rhinological, paediatric, and cardiological clinics in various parts of the world. Writing of the Johns Hopkins Hospital, the physician-in-chief, Professor Warfield T. Longcope, says that as the medical wards—almost unchanged since their erection nearly forty years ago when William Osler was in charge—are now antiquated and inadequate, plans are being prepared for new wards which, with the recently constructed out-patient department, will provide a thoroughly up-to-date medical clinic.

[6] *Methods and Problems of Medical Education* (Tenth Series). New York: Division of Medical Education, the Rockefeller Foundation. 1928. (Imp. 8vo, pp. 343; illustrated.)

[7] *Methods and Problems of Medical Education* (Eleventh Series). New York: Division of Medical Education of the Rockefeller Foundation. 1928. (8 × 11, pp. 263; 178 illustrations.)

NOTES ON BOOKS.

Ciliary Movement,[8] by J. GRAY, F.R.S., is a volume of the Cambridge Comparative Physiology Series. The author points out that there are only two methods of locomotion in the animal kingdom—namely, ciliary movement and muscular contraction—and that therefore the former deserves careful systematic study. The first problem studied is the nature of the movement of cilia and flagella. The various types of movement are described, and an account is given of the various theories that have been advanced to account for these movements. This discussion touches on many problems of considerable interest to protozoologists. Later chapters describe the work done by cilia, the effect of ionic changes on ciliary movement, and the metabolism of ciliated cells. An interesting comparison is made between the laws governing the activities of cilia and those regulating muscle cells. The last chapter is concerned with morphological problems; the distribution of cilia in various types is described and their function is discussed. The author deals with a highly specialized field of knowledge, which he himself has done much to develop. It is interesting to note how many problems of fundamental physiological importance become involved in the discussion of this apparently limited field. One problem of great interest is how the activities of the cells of a sheet of ciliated epithelium are correlated so as to produce the wave-like activity that is termed metachronal rhythm. This co-ordination appears to be effected by some mechanism unlike any known in other forms of living tissue.

Mr. W. S. TAYLOR, professor of psychology in Smith College, is responsible for a concise and useful little book on *Morton Prince and Abnormal Psychology*.[9] He feels that a brief exposition and discussion of the psychological theory of a psycho-pathologist whose reputation has travelled far is needed, since students of mental life are liable to associate Dr. Prince's name more particularly with his dramatic and vivid study of the case of Miss Beauchamp, and, in consequence, they may fail to gain an adequate appreciation of the extent or value of his contributions to psychology generally. It is worthy of attention, as Mr. Taylor justly observes, that Dr. Prince's views are not put forward as a finished system. Only a cult could be so represented, and cults are the bane of science.

Rather more than a year after the appearance of the first edition it has been found necessary to publish a second, and revised, edition of EMERSON'S *Physical Diagnosis*,[10] which was reviewed in our columns on September 22nd, 1928 (p. 530). It is satisfactory that the new lines adopted by the author have proved so popular, and there is no doubt that the book has a very real value. We still think that some reference to the origin of visceral pain might have been included; this is, perhaps, the only defect in an otherwise excellent volume.

[8] *Ciliary Movement*. By J. Gray, M.A. London: Cambridge University Press. 1928. (Demy 8vo, pp. viii + 162; 105 figures. 10s. 6d. net.)

[9] *Morton Prince and Abnormal Psychology*. By W. S. Taylor. New York and London: D. Appleton and Co. 1928. (Cr. 8vo, pp. xi + 137; 1 portrait. 6s. net.)

[10] *Physical Diagnosis*. By Charles Phillips Emerson, A.B., M.D. Second edition, revised. London: J. B. Lippincott Company. 1929. (Med. 8vo, pp. xv + 553; 324 figures. 25s. net.)

SMALL-POX.

STATEMENT BY MINISTRY OF HEALTH.

THE Ministry of Health issued, on April 25th, the following note on the present situation in regard to small-pox.

"Small-pox of mild degree has been prevalent in England and Wales, as in other countries of Europe and America, during the last few years, and the following table sets out the number of cases since 1926, with the number which has already occurred in 1929 up to April 13th.

Small-pox: England and Wales.

	Cases.	Deaths.
1926	10,141	11
1927	14,787	36
1928	12,420	53
1929 (to April 13th)	3,899	16*

* Approximately (exact figure not available).

"It should be understood that these returns include a certain small number of cases of small-pox of severe degree in 1926.

"The distribution of this small-pox of mild degree has been relatively wide, but it has been kept under control or stamped out in all of the thirty-five or forty counties in which it has appeared except in some five to ten districts. But owing to the

relatively high proportion of unvaccinated persons in the population of certain areas, or to neglect owing to the mildness of degree of the malady, the disease has obtained more foothold in those areas. For instance, in the present year most of the cases are concentrated in Durham, the West Riding of Yorkshire, Derbyshire, Northamptonshire, Essex, and Glamorganshire. Where vaccination has been properly carried out, and where the public health administration has been vigilantly practised, this form of small-pox of mild degree has not spread.

The "Tuscania" Cases.

"Some uneasiness has been aroused over what is known as the *Tuscania* cases, but risk of any general outbreak from this source of infection is now at an end. The facts are as follows:

"On March 27th the Anchor Line s.s. *Tuscania*, from Bombay, arrived at Marseilles with passengers and crew numbering 1,589. Two members of the crew had, during the voyage, suffered from a malady which appeared to be chickenpox, but turned out to be small-pox, and one of them died from small-pox on arrival at Marseilles. Some 400 passengers left the liner at Marseilles on March 27th, and travelled direct overland to London and elsewhere. The majority, however, remained on board ship bound for Liverpool. On arrival at Liverpool some 650 passengers disembarked, and information was sent by the Liverpool port authorities to the districts to which they were stated to be proceeding in order that direct personal supervision should be imposed upon them and continued for not less than fourteen days. This practice of supervision has long been adopted in England, and now forms part of Article 42 of the International Sanitary Convention of 1926. Several passengers and the crew subsequently proceeded on the *Tuscania* to Glasgow, where similar action for supervision was taken.

"On receipt of the information thus provided, the central and local health authorities in this country have proceeded in the ordinary way in regard to notification, isolation, disinfection, and strict supervision of all 'contact' persons. It is, however, obvious that if a number of persons apparently healthy at the time of disembarkation leave a ship that has been infected with such a disease as small-pox, it is probable that there will be a number of secondary cases of infection, provided that such persons had not been adequately vaccinated before their contact with the infection. Therefore, although belated vaccination had been offered and practised between Marseilles and Liverpool, 45 persons from the *Tuscania* (out of 1,589) have been notified as suffering from small-pox, 28 in England and 14 in Scotland, the 3 others occurring elsewhere. The English cases occurred in the following districts: in and around London, 13; in the North of England, 7; and in the South, 8. Of the 14 cases in Scotland, 13 occurred in or near Glasgow, and 1 at Aberdeen. The number of deaths up to date has been 7, of which 6 occurred in this country and 1, as stated above, at Marseilles. The date on which the last London case sickened with small-pox was April 7th. The incubation period of small-pox (fourteen days) has expired. It is possible, and indeed probable, that there may be cases of tertiary infection, but speaking generally it may be assumed that the rigorous measures which have been taken in this country have been effectual, and the English ports have been kept free. There was a statement in the Continental press last week that there were not less than 100 cases at Southampton. In point of fact, there have been no cases whatever at Southampton this year, and only 2 in the summer of last year. It has also been stated in the Continental press that small-pox was 'rampant' in London. In point of fact, there have been 167 cases of mild degree in the administrative county of London this year, among a population of 4½ millions. This figure cannot, of course, accord with the number of patients treated in the Metropolitan Asylums Board's hospitals, because cases are admitted to these hospitals from outside London.

"When the *Tuscania* cases occurred, public attention was drawn in France to that incident, and also to the prevalence of small-pox of mild degree in England. Very naturally, France desires to safeguard herself against the invasion of small-pox from Britain, and the action which has now been approved by the French Government is in strict accord with Article 42 of the International Sanitary Convention of 1926, which has been ratified both by France and England. The arrangement is that, if and when unvaccinated travellers from England desire to enter France, they shall furnish the French authorities with their names and addresses in France in order that they may be kept under appropriate supervision until the incubation period (fourteen days) has expired. If they furnish evidence of recent vaccination they obtain 'free pratique'; if they cannot furnish such evidence they are to be provided en route with a card (sanitary passport) on which their name and address will be entered, and they may be called upon to produce this card in the same way that they are called upon to produce a ticket or a passport, and to satisfy the authorities of the district they visit that, within the incubation period, they remain free from small-pox.

"It will be seen [the Ministry's statement concludes] that the great bulk of cases which have occurred in recent years have been mild in degree, and that while the *Tuscania* cases have resembled the more virulent type formerly prevalent, the number of cases has, thanks to the precautions taken, been comparatively small, and any danger of widespread infection from this source may now be said to be at an end."

CONFERENCE ON MENTAL WELFARE.

ADMINISTRATIVE PROBLEMS RELATING TO DEFECTIVES.

A LARGELY attended conference under the auspices of the Central Association for Mental Welfare was held at the Central Hall, Westminster, on April 25th and 26th. The principal matters discussed were the effect of the Local Government Act on the work of local authorities in relation to the mentally deficient, and the report on mental deficiency by the joint committee of the Board of Education and the Board of Control. The latter was the subject of a leading article in our issue of April 27th (p. 775).

Address by the Minister of Health.

Mr. NEVILLE CHAMBERLAIN opened the conference with an address in which he referred to some unsatisfactory features of present administration with regard to mental deficiency, such as the variation in the way in which the statutory duty of ascertainment was carried out by different local authorities, the grave shortage of institutional accommodation, and the lack of supervision and training of non-institutional defectives. He was advised by the Board of Control that so far no single authority had provided sufficient accommodation for its own needs. In view of the fact that it was now sixteen years since the Mental Deficiency Act was passed, this was gravely disturbing. He went on to defend—apparently conscious of some hostility in his audience—the new Local Government Act, saying that those who had criticized it on the ground that a block grant system would not give the same encouragement to local authorities to carry out their duties as was afforded by the percentage grant, had failed to appreciate how far short of expectations were the accomplishments of the last sixteen years under the latter system. While the percentage grant had stimulated the progressively minded local authorities to extend their accommodation, it was not sufficient to tempt the poorer local authorities to draw upon their meagre resources for the purpose of this—as he must call it—unpopular service. The new system was going to take away from local authorities all excuses for not bringing up this service to what it might be. ("Question.") Well, everyone was entitled to his opinion, and time would show who was right. Mr. Chamberlain added that he had endeavoured in this measure to secure the support of voluntary bodies, among which the Central Association for Mental Welfare ranked high. There need be no anxiety as to any ill effect of the Act upon its work or influence.

The Local Government Act and Mental Deficiency.

A discussion followed the Minister's address on the effect of the Local Government Act on the work of local authorities. Mrs. PINSENT, a member of the Board of Control, expressed her belief that the provisions of the Act would lead to a better classification both of the existing institutions in any one district and of the persons concerned,

and this would lead to efficiency, economy, and more humane treatment of a section of the population much to be pitied.

After some criticisms of the Act, which was described by the clerk to one local authority as a "bombshell," had been made, Dr. H. B. BRACKENBURY remarked that whatever opinions might have been held as to this measure while it was passing through Parliament, it was now on the statute book, and there was no use in further argument as to whether it was what might have been desired. It would be generally agreed, however, that it was a very big step forward to that unification of the administration of health services which had been held up as the ideal for many years. While it might not be possible to rely upon a particular authority to accomplish a great deal in the way of unification, it was important to remember that there would be one council clerk and one chief administrative medical officer dealing with all these matters, and this extension of the functions of the principal executive officers to cover the whole field of local administration was a very noteworthy thing. A good deal would depend, of course, upon the personality of these officers, but, assuming that they knew their work and intended to do it in the most helpful way, the fact that there would be one administrative officer was a great gain. With regard to the committee of the local authority which should act in respect to mental deficiency administration Dr. Brackenbury differed from Mrs. Pinsent, who had suggested the Asylums Committee. In his opinion it was the Public Health Committee which should be entrusted with these functions. From both the medical and the social point of view, the problems associated with mental deficiency and retardation were quite different from those of mental disorder and lunacy.

Sir LESLIE SCOTT, who occupied the chair, said that the new legislation would prevent the anomalous position whereby mental defectives who happened to be poor were dealt with by an authority different from that which dealt with more wealthy mental defectives. Mental deficiency would in future be dealt with as it ought to be—as a health matter.

The Incidence of Mental Deficiency.

Sir FREDERICK WILLIS presided over the session when the discussion took place on the report of the joint committee. He made an allusion to the non-publication of Part III, declaring his ignorance as to the reason for withholding, adding ironically that he trusted no such objectionable passages had been discovered in the document as had led to the banning of a recent notorious novel. Dr. A. F. TREDGOLD, a member of the joint committee, also thought the non-publication to be most unfortunate. He could not but feel that some mysterious influences were at work. It was remarkable that there should be any hiding of the carefully considered opinions and recommendations of an independent committee on so important a subject. Dr. Tredgold then described the special investigation on behalf of the joint committee, which had occupied Dr. E. O. Lewis and his staff for two and a half years. The Royal Commission in 1906 came to the conclusion that there were 4.6 mental defectives per 1,000 population—that is, 150,000 defectives in England and Wales. Dr. Lewis's conclusion was that the number was 8 per 1,000, equivalent to a total of 314,000. This higher incidence might be due to a more complete ascertainment, but this did not meet the whole case. While Dr. Tredgold would not suggest that the incidence of mental defect in the community was double what it was a generation ago, nevertheless he could not resist the conclusion that there had been a definite increase in proportion to the population. Possibly the cause in part might be the reduction in infant mortality, whereby a certain number of mental defectives survived; another possible cause was the differential decline in the birth rate. After discussing employability and the classification of defectives from the administrative point of view, Dr. Tredgold added that it was quite clear that there were a large number of defectives in this country urgently in need of institutional care, which at present did not exist. It was doubtful whether the neglect to provide these institutions resulted in any saving of money, and it certainly entailed hardship on the individual.

Professor CARR SAUNDERS of Liverpool pointed out that the full importance of mental defect was not to be measured by the monetary burden. It was not quite true to say that the strength of society was the strength of its weakest link, but this was becoming more nearly true. With social progress there was greater integration and interdependence than before, and this implied that each defective was of relatively greater importance, because a greater drag upon the normal community. Dr. E. O. LEWIS, who carried out the investigation under discussion, also made the point that the mental deficiency figures were an index to a much larger problem. For every one defective thirty others were of subnormal mentality, so that a small increase in the figures for mental deficiency represented a very considerable increase in what might be called the social problem group. Miss EVELYN FOX, another member of the committee, declared that local authorities had failed to secure an adequate number of officers trained in social work, without whom it was impossible to adjust the problem of the defective.

Other speakers referred to what one of them called the "deplorable permission to propagate," and the need for rousing public opinion in favour of measures to prevent propagation. The rural slum, where the very lowest degeneracy was said to be reached, was also mentioned. One speaker suggested that the reason for the apparent increase in the number of mental defectives might be sought in the greater numbers who had applied for relief in recent years in consequence of industrial troubles, with the result that mental deficiency was discovered where it had not been supposed to exist.

The Retarded Child.

The final subject to which the conference addressed itself was that of the retarded child. The discussion was opened by Professor CYRIL BURT, who pointed out some further implications in the report of the joint committee. It appeared that about 1.8 per cent. of the school population in towns were feeble-minded, and nearly double that number in country districts. Applied to the whole country these percentages yielded a total of 90,000 children, or six times the number in attendance at certified special schools. These 90,000 were but the tail-end of a far vaster group of borderline cases. Wherever psychological tests had been applied to large samples of the school population, it had been shown that not only did the normals and defectives overlap, but there was no clean-cut cleavage between them, any more than between day and night. "You cannot diagnose mental deficiency as you diagnose small-pox." Dr. R. H. CROWLEY, senior medical officer of the Board of Education, said that it was in the large group of retarded children—not the mentally deficient—that most delinquents were found. He made a plea for what he called a fresh orientation of ideas and practice with regard to the backward child and his behaviour problems. It was on the behaviour problem that the attention of teacher, social worker, and psychologist should be concentrated.

Many speakers, mostly teachers, took part in the subsequent discussion, which, thanks to the action of the chairman, Mr. MORGAN JONES, M.P., escaped—though narrowly—developing a political bias. The creation of a new educational unit for the retarded child was welcomed, and the need for extending the school-leaving age above fifteen for such children was emphasized. Some experiments in education and training were described. Mr. TIPPER, director of education, Westmorland, gave an account of an experiment in that county where a teacher specially trained for the purpose was employed to visit the schools which had dull and backward children in order to assist in devising methods for dealing with them. Miss MARSDEN, inspector for the Nottingham Education Committee, described a scheme adopted there whereby each child at seven was given a simple mental test in order to classify him according to his mental age. The names of all subnormal and possibly mentally defective children were sent to the senior medical officer, who tested the children in greater detail and decided whether they were suitable for special classes or how they might be most advantageously dealt with. Finally MONSIGNOR NEWSOME described the experiments at Besford Court, where the Montessori method of educating young mental defectives and the vocational training of older children are carried out.

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SATURDAY, MAY 4TH, 1929.

ASPECTS OF RENAL DISEASE.

IT is an early and elementary warning to students of medicine never to omit, in their diagnostic enterprises, the examination of the urine, the sanction of this advice being the fact that renal disease may exist without symptoms that obviously suggest it. A parallel lesson is that the discovery of albuminuria is not necessarily incompatible with sound health. Thus the duty of completeness of observation and the necessity for differentiation appear at the outset among the habits that are urged as the only sound foundation for clinical practice. Effectively to apply these counsels presents no great difficulty in the particular instances above indicated, though it may be allowed that the proof in an individual case that an albuminuria means neither renal disease nor any other disease demands the establishment of something like a universal negative. Still, the task can be accomplished, even though the doctrinal explanation of the fact is not quite a confident one. When, however, for good and sufficient reasons, the conclusion is reached that albuminuria detected on clinical examination certainly means renal disease, the attempt to determine the type or character of the disease is not infrequently attended with many difficulties; and one of the causes of these difficulties is the varied classifications of nephritis with which authors and textbooks confront us.

At one time the pathological anatomist possessed the field. A limited number of structural pictures or plans were described, and into one or other of these groups the physician was expected to fit his patient. To fail was to be guilty of an error in diagnosis. Time has seriously disturbed this claim, and the attempt to correlate the clinical record with the post-mortem appearances of the kidney has not proved universally successful. Hence diagnostic phrases based on the assumption of particular structural alterations in the kidney are widely recognized to be inadequate, for now and again, without any question, clinicians of experience expect from the symptoms and record to find one pathological type of kidney, and as a fact find something quite different. In recent years, and to an increasing extent, disturbances of function rather than anatomical changes have been adopted as a basis for the classification of the varieties of nephritis, and in some instances this basis has been used for a very simple, perhaps a too simple, clinical grouping. Simplicity is, of course, attractive, but after all the facts must govern the situation, and it cannot be said that the clinical study of renal disease presents facts which readily fall into a very limited number of groups. The present position is that the severe anatomical basis of classification has been severely shaken; quantitative measurement of the degree of functional disturbance is gaining recognition; and in the existing transitional and tentative stage a quite sharp and confident scheme of classification able to accommodate all experiences is hardly possible.

Nevertheless, the practical demands of the situation, as well as the need for helpful discussion, require some generally agreed basis and grouping, and as a contribution to these ends the British Medical Association Lecture by Dr. Langdon Brown, which we print at page 797 this week, has obvious value and interest. The scheme of arrangement (modified from Aschoff) is comprehensive, and the classes and subclasses are well defined. The names are familiar, and suggest actual renal conditions. On the other hand, the classification which would allow only two forms of nephritis—hydraemic and azotaemic—seems almost too simple to be true, and the names are free from any suggestion of actual renal change. Possibly this last-mentioned quality is a virtue when, as is not infrequent, a given clinical picture cannot with certainty be interpreted as significant of a given series of structural renal changes. Yet, after all, when thinking and speaking of the kidney it seems almost inevitable that some outline of the actual renal condition must be present to the mind's eye. It may be that further attempts to correlate the microscopic features of diseased kidneys with the clinical records as these are studied by the physician will be successful. Though the macroscopic facts of the post-mortem room have not been fully helpful in this respect, it does not follow that histological studies will fail, though, truth to tell, details of the destroyed edifice cannot with much hope be counted on for a definition of the source and characters of the conflagration. In the meantime the practice of medicine must be carried on, and a working scheme, even allowing that it has defects, is better than no scheme at all.

In the text of his lecture Dr. Langdon Brown discusses both the weak points in his tabular grouping and also the possibility of overlapping and of intermediate cases. To read the lecture is an opportunity for noting that an experienced physician, while recognizing the value, or, indeed, the necessity, of classification, keeps classification in its proper place, and uses it to help, not to dominate, the study of facts. Facts remain and will be repeated. The grouping of them will doubtless be modified by the pressure of time and the event.

Another illustration of the modern tendencies in medicine as discussed in the lecture is the advocacy of quantitative chemical analysis as this may be applied both to the urine and to the blood. The younger generation of practitioners is growing up under influences of this order, and though the standard is a high one and not easily to be attained, the service both to exactness of diagnosis and prognosis and to confidence in treatment is beyond question, and a levelling up of practice to these claims may therefore be expected. Some of the chemical tests may perhaps always need laboratory observation and skill; but this is not true of all the tests by which the function of the kidney can be estimated, and the desirable thing is that the practitioner, so far as possible, should cultivate first-hand knowledge and depend on his own observations. Whether such a view is accepted or not, it is manifest that the demand is for greater precision and a more searching investigation in every attempt to estimate the functional value of the kidney when diagnosis and prognosis have to be practised. If the standard is a severe one the reward is to be found in increased scientific knowledge and in added practical values. The broad position that has to be faced is that renal function may be much impaired with little structural change; while, on the other hand, destruction, and even considerable destruction, of the renal tissues may yet leave a large measure of functional efficiency. Evidently, therefore, the demand on the practical plane is for an estimate of the function of the kidney, and particularly of its function as an excreting organ.

A feature of Dr. Langdon Brown's lecture that should gain immediate recognition is the attention he gives to the subject of treatment. Even here, as in the issue of classification, there are differences of opinion, and it is an obvious advantage to have on record the experiences of a physician who speaks after having equipped himself with a large and carefully garnered body of first-hand observation and knowledge. In respect both to diet and drugs Dr. Langdon Brown has arrived at conclusions which do not always fit conventional and traditional teaching, but they are not on this account less worthy of attention. Altogether the lecture presents our readers with a summarized view of the trend of modern opinion in regard to the various forms of nephritis, with the investigations needed to establish diagnosis and prognosis, and with directions for treatment which rest on the basis of personal observation and experience. It may be, as the lecturer says, that modern investigations of the clinical and pathological problems associated with nephritis are disputing what until yesterday seemed to be well-established and admitted teaching, with consequent disturbance and uncertainty of opinion. The challenge, as many recent writings show, is indeed a very radical and inclusive one, and as it bears upon practice in relation to forms of disease that are far from infrequent it needs general attention. Nor are the issues to be settled purely by chemical tests and laboratory experiments. There is room and opportunity for clinical observations and records, and this more especially in the more chronic forms of renal disease. It is not without interest in this connexion to note that it is for an investigation of this order, conducted over a period of thirty years, that the Council of the British Medical Association, as announced in the *Supplement* to our issue of April 20th (p. 104), has awarded to Dr. Arthur Crook the Sir Charles Hastings Prize for 1929.

A NATIONAL RADIUM FUND.

ON April 16th the Chancellor of the Exchequer announced that the Government had undertaken to contribute out of public money towards the purchase of radium, on a basis of £1 for every £1 otherwise subscribed, up to a limit of £100,000. A public appeal for £150,000 (making £250,000 in all) to form a "National Radium Fund" has now been set on foot by leaders of the medical profession acting in concert with laymen prominently associated with the work of hospitals and cancer research. The purpose and scope of the fund were indicated in a letter published in the *Times* of April 29th, over the signatures of Sir John Rose Bradford, Lord Moynihan, Lady Barrett, Sir E. Farquhar Buzzard, Lord Dawson of Penn, Dr. Robert A. Fleming, Lord Gorell, Sir Thomas Horder, Lord Knutsford, Mr. J. P. Lockhart-Mummery, Sir Ewen J. Maclean, Dr. J. M. H. MacLeod, Mr. Alexander Miles, Lord Reading, Sir Humphry Rolleston, Sir Arthur Stanley, Lord Stanmore, Sir StClair Thomson, and Sir John Bland-Sutton.

The money obtained in this way, together with that contributed by the Government, is to be held by a body known as the National Radium Trustees, who will buy therewith and hold radium for use by an administrative body of experts known as the National Radium Commission. The Trustees are being constituted by the Government in accordance with one of the recommendations made by the Radium Subcommittee of the Committee of Civil Research,[1] but with two additional medical members to be nominated from their own number by the Radium Commission. The composition of the latter body has been modified so as to ensure adequate representation upon it of those familiar with the use of radium in medical practice, and its membership has been increased from nine to eleven. The Commission will thus consist of a chairman, appointed by the Trustees; six members, appointed by the Trustees from a list of names drawn up by the titular heads of the medical profession; and four members nominated respectively by the Minister of Health, the Secretary of State for Scotland, the Medical Research Council, and the Department of Scientific and Industrial Research. The general effect of these changes in the administrative framework of the scheme put forward by the Radium Subcommittee is summed up in the letter published on April 29th: "The radium will be bought and held by a body of Trustees which has the confidence alike of His Majesty's Government and the medical profession. It will be administered by a Commission which will contain an effective majority of members representing the skilled and experienced workers on the staffs of the voluntary hospitals."

The national appeal for radium is being made conjointly with a special appeal by King Edward's Hospital Fund in aid of the hospitals in the metropolitan area as a thank-offering for the King's recovery, the nucleus of the latter project being 100,000 guineas offered by an anonymous benefactor. Lord Donoughmore is acting as treasurer of the combined appeals, and arrangements have been made by the King's Fund so that contributions ear-marked for the purchase of radium for the needs of the whole country will be applied to that purpose through the National Radium Fund; such gifts should be marked "Radium," and sent to the Treasurer of the Thank-Offering Fund, at 103, Kingsway, W.C.2. Any doubts and misgivings about the constitution of the National Radium Commission having now been removed, the medical profession will whole-heartedly support this appeal. The first list of subscribers was headed with the names of the King, the Queen, and the Prince of Wales; and His Majesty has expressed warm approval of the decision to amalgamate the two undertakings.

[1] A full account of the subcommittee's report appeared in the *British Medical Journal* of April 27th, p. 772.

THE LONDON ZOOLOGICAL SOCIETY.

ONE hundred years ago King George IV granted to the London Zoological Society a royal charter "for the advancement of zoology and animal physiology and the introduction of new and curious subjects," and on Monday last, at a special meeting held in University College, London, the society celebrated the centenary of this great event in its history. The study of zoology has always had a special attraction for medical men; the subject forms, and of necessity must always form, an essential part of the curriculum of the medical student, who, because he must become biological in outlook, has to realize that medical science itself involves but the intensive study of one of the highly developed animals. Many of the most celebrated zoologists have belonged to our profession, or else, like Charles Darwin, have been diverted to specialization in zoology while engaged in the study of medicine. Small wonder, then, that a large number of physicians and surgeons are not only Fellows of the Society, but are actively identified with its activities. The post-mortem room has been called the Palace of Truth from which many who have entered with one label have departed with another. No less valuable than the necropsy on the human subject is the study of comparative anatomy and pathology conducted in the society's prosectorium, and it is noteworthy that famous

men closely associated with that work—Richard Owen, Huxley, Alfred Henry Garrod, W. A. Forbes, H. G. Plimmer, Murray, Elliot Smith, and Leiper—have also been members of the medical profession. Perhaps it is because for the past few years all the comparative anatomists of the society and its pathologists have been medical men that much of their contribution to knowledge has had a direct bearing on human health and sickness. Human anatomy has been enriched by Sonntag's work on the primates; the work of Bland-Sutton and H. H. Scott, now being ably continued by A. E. Hamerton, has added largely to our knowledge of human pathology. Even more than anatomy and pathology, the science of parasitology—because its study in man is inseparable from its study in animals—has been advanced in the society's prosectorium. Notable in this connexion is the work of Beddard and Nicoll before the war, and since then of Leiper and his colleagues, who, moreover, have rendered invaluable service by providing a number of the younger parasitologists with material for study. Though the medical profession as a whole has appreciated the value of comparative medicine only since the war, many of its leading members have long been engaged in its study, and nowhere more fruitfully than in the London Zoological Society's gardens. In this connexion our profession owes a deep debt of gratitude to the society, and in particular to its brilliant secretary, Dr. P. Chalmers Mitchell, without whose assistance it is probable that much of the research work in comparative medicine could never have been carried through. The appointment of Dr. G. M. Vevers to the post of superintendent, hitherto occupied only by professional zoologists, is a further guarantee that every opportunity will be taken to foster the relation between zoology and general medicine. But research work has by no means been confined to the prosectorium. The new aquarium has provided a vehicle for investigating problems intimately connected with one of our most important food supplies; the gardens themselves have afforded conditions unattainable in the laboratory for the study of economic zoology; and the library, one of the finest of its kind, offers the student and worker the whole range of zoological literature. We congratulate the society on its hundredth birthday. Not only has it captured the popular imagination as no other similar society in any part of the world, but it has prosecuted and encouraged active research into problems of fundamental importance to human and comparative anatomy. It enters its second century with the best wishes of the medical profession.

LOCAL GOVERNMENT ADMINISTRATIVE SCHEMES.

FOUR documents with reference to the submission of administrative schemes under the Local Government Act, 1929, in addition to the general circular on which we commented a fortnight ago (p. 735), have now been issued by the Ministry of Health to the councils of counties and of county boroughs in England and Wales. They are a memorandum addressed to county councils outside London, a similar memorandum addressed to county borough councils, together with, in each case, a model administrative scheme. These documents are of great importance, not only to the councils for whose use they are prepared, but also to medical officers of health and medical practitioners in general, and especially to the Branch Councils and Divisional Executive Committees of the British Medical Association, upon whom now rests the duty of securing that the administrative schemes conform, so far as possible, to the general requirements which the Association considers to be in the interests of public health. The memorandum and model scheme for county boroughs are naturally somewhat simpler than those for counties, but both have some features to which particular attention may well be directed. The council has first to make a detailed declaration of all those services in assistance to necessitous persons which it will provide exclusively by virtue of the Public Health or other Acts and not by way of poor relief. The Minister indicates that this declaration must be as widely embracing as possible in each case, and in an appendix sets out all the services which, under several Acts, may be provided in this way. It is, however, pointed out that "the making of such a declaration places the council, in so far as destitute persons are concerned, under an obligation to exercise the powers which they have under the special Acts, and, accordingly, a formal declaration should not be made until adequate resources can be placed at the disposal of the committee administering the special Act." The council, therefore, in some cases, may wish at first to make a scheme meeting only the immediate necessities of the transfer; but any such scheme can be revised and amended at any time by a further scheme similarly made and approved. Even where the including of some service in a declaration is not immediately practicable it will often be possible for a particular Poor Law institution to be appropriated for the purposes of a special Act. "Where, for example, hospital provision cannot be made for a whole county, it may be practicable to appropriate a particular Poor Law infirmary for use as a public hospital under the Local Government Act, 1888, and still to keep in operation the Poor Law powers of relieving the sick poor in so far as other accommodation for them is required." The same would apply to a home for mental defectives under the Mental Deficiency Acts. Next to the declaration as to what services are to be provided otherwise than through the Poor Law, the council must specify its choice between several alternatives for the constitution of its Public Assistance Committee. This committee may be either (1) a new committee with or without co-optative members, (2) another existing committee appointed to act as the Public Assistance Committee, or (3) the members for the time being of another committee of the council, together with additional members who may be either members of the council or co-opted persons who are not members of the council. In practice, if the second of these methods be chosen, it will probably be found that the Public Health Committee is the only one which can conveniently so act. Incidentally it is pointed out that the powers of co-option conferred by the Act on the councils with regard to their Public Health Committees and certain subcommittees can at any time be exercised, and do not need to be mentioned in an administrative scheme. However constituted, it is clear that the business of the Public Assistance Committee must involve on occasion the prompt taking of decisions to be followed by immediate action, and that therefore the councils should use their power of delegating to the committees appropriate responsibility and duty. This may be done with or without reservation, except as regards the raising of a rate or borrowing money; and accordingly the model scheme contains a clause making such delegation and setting out reservations thereto, and a number of definite duties which the committee must perform. Both these categories may, of course, be varied in individual schemes. In the county model scheme the constitution and functions of the local Guardians Committees are also set out. These clauses will require careful watching in all large counties, for to these Guardians Committees may fall in many cases the actual management of hospitals or other institutions. Lastly, attention should be drawn to the important point that "the scheme may provide that particular functions which have been delegated to the Public Assistance Committee shall be discharged on behalf of and subject to the general control of the committee by another committee of the council. This power is directed to meeting a case in which the special Acts under which a particular committee is working do not extend to a service performed under the Poor Law

which it is, nevertheless, desired to co-ordinate with the special service." The number of matters in connexion with which such power may well be exercised will be considerable. This is decidedly a second-best method of securing co-ordination of health services, but pending further legislation it seems the only practicable course. It is of importance to see that the clause embodying this provision is included in every scheme. Apart from the four official documents with which we have been concerned, and which relate only to the preliminary action to be taken by councils with regard to administrative schemes, there are a number of special points on which the Minister of Health will no doubt feel it necessary to issue additional memorandums. Indeed, already there have been three such documents circulated—a memorandum with regard to schemes (under Section 101 of the Act) for securing payment by the council of annual contributions towards the expenses of voluntary associations, if any, providing maternity and child welfare services, together with a model scheme for counties and for county boroughs respectively. These schemes are of some importance in a good many areas, and, of course, seriously affect the activities of the voluntary associations concerned, but they are of minor interest as compared with the general administrative schemes upon which the efficiency of health services and of public health work is vitally dependent.

A MEDICAL SUNDAY SCHOOL IN PARIS.

A SMALL volume entitled *Leçons du Dimanche*,[1] containing twelve lectures by Paris clinicians, has been edited by Professor Paul Carnot, successor to Professor Gilbert as chief of the medical clinic at l'Hôtel-Dieu. Professor Carnot explains how he wished to keep the busy physicians, practising in the city, in touch with recent hospital developments, and therefore a course of twelve lectures, held at 10.30 o'clock on Sunday mornings at l'Hôtel-Dieu, was arranged between New Year and Easter of last year. Their success was immediate, and it is hoped to make these Sunday lectures an annual event. The present small paper-backed volume is a reprint of the first set of lectures, and its main purpose is to refresh the memory of those who attended them. The chief value of this little book to us in Britain is perhaps the way in which it illustrates the differences between the teaching of medicine in the two countries, and it is interesting to consider what might be the titles of the twelve addresses chosen if such a "Sunday school" could be held in one of the large teaching hospitals in Britain. Would any of the lectures be on such subjects as "Les péri-dextro-viscérites infectieuses" (Carnot), "Les troubles du metabolisme de l'eau chez les hépatiques" (Villaret), or even "Thyroxine et folliculine" (Harvier)? Several of the lectures are naturally on subjects of topical interest everywhere, such as the infections of the nervous system, modern radiological methods in gastro-intestinal disorders, and certain aspects of insulin treatment. The characteristic qualities of the individual lecturers stand out clearly, and the points of view of a dozen representative Parisian teachers are easily grasped by a reader who has never been in Paris hospitals and does not know the kind of medical teaching which exists there to-day. He will, however, be somewhat at a loss to understand a good deal of what is discussed, and would wonder how he would fare and what methods he would use if suddenly transported to take charge of a medical practice in Paris. The independence of French medicine is certainly remarkable, and it follows no lead given by any other country. Its trend is becoming far more difficult to follow than it was a generation ago, and even the close co-operation of the war years seems in no way to have approximated the details of everyday methods employed in practice in France and Britain. The basic ideas of physiology are naturally the same, but what has been developed out of them seems so different. It is to be hoped that this volume of lectures may be repeated annually, to enable those who are interested to keep in touch with the problems which are engaging the attention of the practising physicians of France at the moment.

[1] *Leçons du Dimanche.* Par P. Carnot, Sainton, Bensaude, M. Villaret, H. Bénard, A. Baudouin, Diocles, Tiffeneau, Halbron, Rathery, Harvier, Chabrol. Paris: J. B. Baillière et Fils. 1929. (5¼ × 8¼, pp. 273; 20 figures. 20 fr.)

THE HISTORY OF PATHOLOGY.

THE history of pathology has not hitherto engaged the attention of medical students except in a very perfunctory and partial manner, without any definite educational aim. That it might be of distinct educational value appears to have been first recognized by Sir William Osler, who made use of it in his lectures, and Professor Long has emphasized its claim in this connexion. A bewildering mass of detail is now presented to the student in all branches of medicine, and his knowledge is in consequence apt to consist of loosely connected facts. The sense of perspective is to a great extent lost, and the significance of individual facts in relation to the science generally is unperceived. Some guiding thread is needed which will assist him in organizing his knowledge and enable him to place isolated facts in their proper organic position in the general scheme, and to recognize their bearings. It is claimed, with some justification, that nothing serves this purpose better than history; the historical connexion of facts is readily comprehended, and the human and personal element which pervades it holds the attention more firmly than a purely abstract presentation. The history of pathology is, however, a large subject, and the student is not recommended to study it in any considerable detail; but a short abridgement, such as that of Professor E. R. Long,[1] made interesting by personal details relating to notable discoverers, and by indications of the scientific and pseudo-scientific ideas prevailing in the several stages of the progress of civilization, should be helpful to the student. In twelve brief chapters Professor Long has traced, in a readable manner, the progress of medical science from its beginnings, sketching with a skilful hand the evolution of our present conceptions. The book was written with the object of assisting students on the lines indicated above; it is small, so that it may be read in a few sittings of an hour or two each; and an occasional reperusal from time to time would without doubt help students in maintaining their bearings amid the mass of facts which threaten to overwhelm them.

HEALTH IN ILLINOIS.

WE noted a year ago the appearance of the first memorial volume issued by the Department of Health for Illinois in commemoration of its jubilee in 1927, which contained a historical account of the progress of sanitation in the State from early down to recent times. The second volume,[2] which has now appeared, reviews the position of the local health administration. Every city, village, and rural area in Illinois is empowered by law to establish a public health service. The cities may either have boards of health or be administered for health purposes by a commissioner. One health department is described as privately owned, and rural areas in a number of cases are

[1] *A History of Pathology.* By Esmond R. Long, Ph.D., M.D. London: Baillière, Tindall and Cox. 1928. (Cr. 8vo, pp. xxiv + 291; 48 plates. 22s. 6d. net.)

[2] *The Rise and Fall of Disease in Illinois.* Vol. ii. By Isaac D. Rawlings, M.S., M.D., in collaboration with William A. Evans, M.D., D.P.H., Gottfried Koehler, M.D., and Baxter K. Richardson, A.B. Illinois: State Department of Health. (Sup. roy. 8vo, pp. 493; illustrated.)

ill provided for. In general the level of competence of health officers is not up to British standards. Of the 2,720 local health officers in the State fewer than 400 have any medical or sanitary training. In some outlying areas, therefore, as is inevitable in a new country in certain stages, administration is still in process of development. Strongly contrasted with these immature communities of Illinois is its chief city of Chicago, which has an intensively organized health service. The phenomenally rapid growth of the city raised health problems of the most varied kind, among the acutest of which were the disposal of sewage and the protection of the water supply. Time was when Chicago drew its water in a natural state from Lake Michigan, and discharged its sewage into the Chicago River, which terminates in the lake. This river had been an offence for years, and various devices had been used to improve it, but in August, 1885, after two days' heavy rain, it rushed in a torrent into the lake, carrying its foulness two miles off-shore across the only water intake of the city, the supply of which was at this date untreated. Amid considerable popular excitement preventive measures were set on foot, and in 1892 powers were given to construct the Chicago drainage canal. This great channel, opened in 1900, reverses the flow of the Chicago River, and carries the waters of Lake Michigan, bearing the sewage of Chicago with them, from the St. Lawrence watershed to the Des Plaines River, and so to the Mississippi. The effect of the drainage canal was soon apparent in the reduction of the typhoid mortality of Chicago. It fell from 27 per 100,000 in 1899 to 10 per 100,000 in 1911. The introduction of chlorination of the water supply in 1912 was an added measure of safety. In 1926 the typhoid death rate was 0.8. In view of misgivings which have been expressed in certain quarters as to the propriety of transferring water which might have nourished the St. Lawrence to a purely American river, it is pertinent to note the comment of the writer of this interesting volume that the canal merely renews the flow from Lake Michigan to the Mississippi, "as it had flowed in prehistoric times"!

THE YELLOW FEVER COMMISSION.

HONOUR has now been officially bestowed on the work of Walter Reed and those associated with him in the Yellow Fever Commission by the Congress of the United States, with the full approval of the President. A roll of honour is to be published regularly in the Army Register, and will contain the names of the twenty-two members of the military establishment who participated in the experimental investigation of yellow fever in Cuba. Gold medals are being presented to those who survived and to representatives of those who died; pensions are to be awarded to the sixteen living members and to the widow of one of the soldiers. Commenting on this, the *Journal of the American Medical Association* for March 23rd remarks that the report of these experiments published for the use of the Senate in 1911 is one of the most interesting volumes in American medicine, and our contemporary recalls the vote of thanks to the members of the Yellow Fever Commission adopted by the meeting of the American Medical Association at Saratoga in 1902. The self-sacrifice of those who risked their lives in the attempt to discover the method of transmission of a fatal epidemic disease can, indeed, hardly be overpraised. They were injected with blood from patients dying from yellow fever; they were bitten by infected mosquitos; they slept in beds in which patients had died; and they wore infected clothes. We referred more than once last year to the progress that is being made in the prophylaxis of yellow fever, and a review of what has already been achieved by Hindle and others was given in a leading article on November 24th (p. 947).

ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION.

THE annual meeting of the Canadian Medical Association is being held this year at Montreal from June 17th to 21st. Among the principal speakers are: Professor E. Rist of Paris, who will give a lecture on the onset of pulmonary tuberculosis and its lobar localizations; Mr. J. A. Cairns-Forsyth of London, who will lecture on the surgery of the biliary tract and pancreas; Sir StClair Thomson, who will speak on intrinsic cancer of the larynx and its successful treatment by laryngo-fissure; Dr. D. P. Armand-Delille of Paris, who will demonstrate the diagnosis of the early stages of pulmonary tuberculosis in infancy and childhood, by means of *x*-ray films, anatomical preparations, and coloured lantern slides; Professor L. Ambard of Strasbourg, who will lecture on the significance of hyperglycaemia in diabetes; and Dr. G. B. Roatta of Florence, who will deal with child welfare as the basis of public health. Other subjects for consideration at this meeting are: the differential diagnosis of clinical conditions accompanied by jaundice; periodic health examination; acidosis in anaesthesia; and the duty of the doctor to the hospital. The Harvey film will be shown by Dr. Léo Parizeau of Montreal. A report on B.C.G. vaccine will be rendered by Dr. J. A. Baudouin of Montreal. In addition to these general sessions there will be sectional meetings occupying three mornings. Thursday, June 20th, will be celebrated as "Osler Day," and the Osler Memorial Address will be inaugurated. The April issue of the *Canadian Medical Association Journal* contains further details about this annual meeting, and also an historical sketch of Montreal.

THE KING, as patron of the London Radium Institute, has approved the appointment of Sir George Blacker, M.D., as president of the Institute in place of the late Sir Anthony Bowlby, and of Sir Hugh Rigby, F.R.C.S., as a member of the committee.

THE President of the Victorian Branch informs us that a meeting will be held by that Branch on May 12th as a memorial to Sir George Syme, LL.D., F.R.C.S., Vice-President of the British Medical Association, of whom an obituary notice appeared in our last issue.

IT is announced that the first congress of the International Society for Microbiology, which was fixed to take place in Paris in October, 1929, has been definitely postponed to June 25th, 1930. The programme, which has already been published in various scientific journals, will stand.

Two popular lectures will be delivered next week in the Great Hall of the British Medical Association House, Tavistock Square, in connexion with the Fifth International Congress of Military Medicine and Pharmacy. They are open to any member of the British Medical Association, and the Executive Committee of the Congress hopes to welcome many medical practitioners and ladies accompanying them. The first lecture will be by Major Ian Hay Beith (Ian Hay) on the subject of "The English sense of humour." It will be delivered at 3.30 p.m. on Tuesday, May 7th, the chair being taken by Surgeon Vice-Admiral Arthur Gaskell, Medical Director-General, R.N. The second lecture, at 3.30 p.m. on Thursday, May 9th, will be by Sir Philip Gibbs, on "Experiences of an official war correspondent." Those attending the lectures will be welcomed also at the Service and Commercial Exhibition which is being organized in the extension of the B.M.A. House during the week of the Congress.

BRITISH CONGRESS OF OBSTETRICS AND GYNAECOLOGY.

DISCUSSION ON THE MANAGEMENT OF CASES OF PELVIC DISPROPORTION.

THE seventh British Congress of Obstetrics and Gynaecology met in the Royal College of Physicians, Dublin, on April 24th, 25th, and 26th; Dr. GIBBON FITZGIBBON presided. The opening subject was the management of cases of pelvic disproportion, and the discussion was introduced by Professor MUNRO KERR (Glasgow), who dealt with the diagnosis of this condition.

Professor Munro Kerr pointed out that the diagnosis of pelvic disproportion by instruments, the hands, or radiography was very difficult in so far as the obtaining of exact measurements of the pelvic inlet was concerned, but that deformities of the outlet could be accurately determined. He insisted that the selection of treatment for deformity of the pelvis at the inlet depended on an exact estimation of the relative size of the foetal head and the pelvis, but, for the outlet, treatment should be based on exact measurement of the outlet. He emphasized the importance of recognizing minor deformities, since failure to do so resulted so often in unsuitable treatment being employed; he believed that the largest proportion of disasters occurred in this group. In conclusion, he pointed out that the practical question was: Will the head pass? He referred to the factors which influenced spontaneous delivery: (1) the previous obstetric history; (2) any irregularity in the pelvic brim; (3) the size of the foetal head; (4) the degree of ossification; (5) the variety of biparietal obliquity; and (6) the strength of the uterine contractions.

Professor FLETCHER SHAW (Manchester) dealt with the immediate results to the mother and the child of labour with contracted pelvis. He showed clearly that induction, even though it must be performed unnecessarily in many cases, was still a potent factor in reducing the large number of Caesarean sections.

Dr. JAMES YOUNG (Edinburgh), speaking on the treatment of obstructed labour due to pelvic disproportion, brought to the notice of the meeting the importance of inter-hospital investigation of the mortality and morbidity in institutions where the same lines of treatment were being employed. In one instance which had come under his notice, one hospital, in a series of Caesarean sections performed on clean cases, had a mortality six times greater than another hospital using the same technique. He cited the great record of Frances Ivens in this respect, and suggested that the discrepancy between any two institutions, when all other sources of infection had been excluded, was one endemic to the particular hospital concerned.

Dr. J. D. BARRIS (London) dealt briefly with the history of the operation of induction, and clearly indicated the value of this method of treating disproportion, provided that a time after the thirty-sixth week was chosen.

Dr. R. H. PARAMORE recommended pubiotomy in neglected contracted pelvis cases. In such cases, in which delivery with forceps had been tried perhaps often, and many vaginal examinations had been made, if pubiotomy was discarded one must either perform Caesarean section, with what seemed a very considerable risk to the mother, or a craniotomy, at times on the living and uninjured child. In these cases pubiotomy was a valuable and useful procedure. He had performed the operation seven times; he had had one death from pre-eclampsia, and one case of urinary incontinence due to ulceration of the urethra. The death was in nowise connected with the operation; the urinary trouble in the other seemed to be due to the use of a retained catheter, but the case had been very difficult to nurse; all the other patients had recovered. A point to be noticed, which was not mentioned in the books, was that the vagina might be split, during the delivery, opposite the section of the bone. In septic cases an osteo-myelitis could develop, and this happened in one of the speaker's cases. In another case pubiotomy resulted in a living child, and convalescence was normal.

Dr. W. R. MACKENZIE (Belfast) said that while external pelvimetry enabled them to measure directly external pelvic diameters, and thence to draw certain conclusions as to the degree of contraction, it was insufficient for estimating the size of the pelvic cavity. This could not be done directly in the living woman except during a laparotomy. Internal pelvimetry had the disadvantage that an anaesthetic was required for accuracy, and even then more than one finding was necessary. The only accurate method was that of *x*-ray photography, with a standard pelvic photograph as introduced by him in 1923. By this method one could accurately measure the pelvic inlet and outlet. The minor degrees of contraction were easily recognized, and one could advise the patient when a test of labour or induction should be attempted.

Dr. BETHEL SOLOMONS and Dr. W. TAYLOR (Dublin) discussed 294 cases encountered at the Rotunda Hospital during a period of two years. The various methods by which diagnosis was made ante-natally were considered; the value of external pelvimetry was dealt with, and its relation to the size of the foetal head. Other points for discussion were: should the Skutsch pelvimeter be used, and would it, with *x*-ray pelvimetry, replace this method? A modification of the external Müller procedure was suggested and illustrated. The Kerr-Müller procedure must be carried out as a routine; its technique was considered. Treatment would depend largely on the findings of this examination, and successful results could only be obtained after experience. Some points in a trial labour were emphasized; in connexion with this the details of making a rectal examination were of importance. The fact that a woman had been delivered of one or two infants normally did not exclude the possibility of difficulty in subsequent confinements. Were there indications for pubiotomy? Disproportion might be caused by factors other than the relation of head to pelvis; inco-ordinate uterine action was a typical example. Examples of this abnormality were given and the question was discussed. At the end of the paper a summary of the varieties of contracted pelvis encountered in the investigation was given. The conclusions reached were as follows. There were 294 cases that could be grouped as disproportion among 4,000 progressive cases at the Rotunda Hospital over two years, a percentage disproportion rate of 7. Ante-natal diagnosis was the ideal to aim at; the possible course of labour could be surmised thus in many cases. External pelvimetry was of much service; 43.8 per cent. of the cases with small measurements in the series required some form of operative intervention. Internal pelvimetry by the Skutsch instrument was used; the measurements obtained were of distinct service in estimating the probable margin of safety on the side of proportions in conducting a trial labour. *X*-ray pelvimetry was useful, and should prove to be more so. It avoided internal manipulation, and gave accurate results in a large percentage of cases. An *x*-ray film provided a fair idea of relation of head to pelvis. The head was the best pelvimeter. The suggested modification of the Müller method was extremely useful. The Munro Kerr-Müller estimation must always be made; in this the importance of the soft parts must be remembered. Induction of labour had an important place in their treatment, but the knowledge when to induce and when to leave alone required prolonged practice. Induction and trial labour might be employed in borderline cases, with a view to the performance of the lower segment section operation with safety. Rectal examination should be used to watch the progress of labour, but there was no need to overdo it; one vaginal examination was usually sufficient. When uterine inertia occurred great care must be exercised in diagnosing whether the condition was primary or secondary. The condition of the foetal heart must be observed; temporary accelerations or diminutions were not always of great importance. Information of note could often be obtained by observing the height of the retraction level; this gave a relative idea of the size of the cervix and of the amount of tension in the lower segment. Since failure to deliver with the forceps had been common in some countries in the past, the authors gave their points in diagnosis regarding pubiotomy, in the belief that the failures referred to had been due to faulty diagnosis. They believed that pubiotomy had a very small place in treatment. A final Munro Kerr-Müller examination should be made under anaesthesia in cases in which

there were indications for delivery, but it was not possible to be absolutely certain without anaesthesia that the head had passed through the brim. It was suggested that an investigation into the comparative weights of mothers and newborn babies might be made. The symptoms and signs of dystocia were given. The diagnosis of false labour, spasm of the uterus, and especially contraction ring must be thought of when dealing with any case of disproportion. A group of symptoms found in cases of contraction ring was given.

Professor R. W. JOHNSTONE (Edinburgh), in a paper on the induction of premature labour in disproportion, dealt most lucidly with the points for and against the procedure, citing the experience and dicta of various schools. He stated that it was his feeling that the place of induction was in those cases of disproportion where there was just an element of doubt whether a full-sized child would pass through the pelvis without subjecting itself and the mother to a prolonged and difficult labour. This was especially the case in primigravidae, for the information so gained would be of the first importance in subsequent labours. Professor Johnstone believed that the operation was justified in the case of a woman who, in a previous labour, had been delivered naturally of a stillborn child of average or over average weight, or in whom the test of labour on a previous occasion had failed and necessitated a high forceps operation. Cases of slight contraction of the outlet also came within the category of this suitability.

Mr. EARDLEY HOLLAND said that the results of treatment of cases of slight and moderate disproportion by the induction of premature labour were, up to a point, very good; the maternal mortality was almost zero, the foetal and neo-natal mortality was not more than 10 or 12 per cent., and the later infant mortality was said to be not too high. The alternative method of treatment by the "test of labour" had never found favour in Great Britain, but was employed in almost every other country. Treatment by induction of premature labour did not require a high degree of obstetrical skill or experience; but treatment by the "test labour" method was suitable only for expert obstetricians. It was essential to have an experienced and expert obstetrician resident in the hospital; every phase of a "test labour" must be watched by an expert, who must know exactly when and how to intervene. Mr. Holland had become dissatisfied with the induction method many years ago. Apart from the high foetal and infant mortality associated with it, the methods of inducing labour left much to be desired. They were slow, uncertain, and often required many manipulations; the character of the resulting labour was often unsatisfactory; in a high proportion of induced labours there was uterine inertia and early rupture of the membranes, with the common sequels of malrotated vertex presentations and badly flexed heads. His experience led him to continue using the "test labour" method. In an investigation undertaken in 1926, the results of which were embodied in a paper read at the Coombe Hospital Centenary Congress, he had come to the conclusion that induction had been performed unnecessarily in 80 per cent. of the cases, and had been performed either too early or too late in many of the remainder. Cases of apparent disproportion at the thirty-sixth or thirty-seventh week might by the time term was reached be found with the head well engaged in the pelvis. Mr. Holland concluded by emphasizing the value of the "trial labour," when properly conducted by an expert.

Dr. BETHEL SOLOMONS, replying, said that the main purpose of the teaching at the Rotunda was that the general practitioner should acquire knowledge which would ensure a safe delivery for his patients. He practically never performed section before labour, unless in repeat cases with absolute indications. The lower segment operation was safer than the classical. There was scarcely any mortality, and the morbidity was small; it could be employed after trial forceps or failed forceps. Drainage should be used in suspicious cases. The papers read that day had established the superiority of the low over the high incision, especially with regard to the number of fatalities in potentially septic cases. He intended to give trial labours to suitable patients on whom the lower segment operation had been performed. There had been one incomplete rupture of a scar; the patient had previously had an 8-lb. baby, and the measurements were normal. On the subsequent occasion the child was over 10 lb., and foetal distress necessitated delivery; the uterine muscle had ruptured for about an inch, the membranes and the peritoneum were intact. Both mother and child had uneventful recoveries. There had been several normal deliveries after previous section. There was never any necessity for craniotomy on the live child; the lower segment operation was as safe, if not safer, in suspicious cases where marked disproportion existed. In some cases, even when the child was dead, section might be indicated. He did not agree that previous stillbirths made Caesarean section absolutely necessary, unless the woman was near the completion of the child-bearing age. It must be clearly remembered that most of the cases reported by Holland were before the popularity of the lower segment operation became manifest. The longer that labour lasted the greater was the bacterial content of the uterus. When the results of induction and section were compared the number of unnecessary sections must be taken into account. He, Dr. Solomons, was a firm believer in induction, in trial labour, and in induction followed by trial labour; they all had their place. There was a very small field for induction in primigravidae, but this treatment certainly had a place in obstetrics. He joined in the protest against the separation of the ante-natal clinic from the maternity hospital. The establishment of such isolated clinics was a waste of public money, which could be spent much better on increased grants to the hospitals. Trial labour could be practised in private practice. He thought it was a great credit to the congress, and to British and Irish obstetricians in particular, that the Kielland forceps had not been mentioned by any speaker in the discussion; the instrument was dangerous.

(To be continued.)

ZOOLOGICAL SOCIETY CENTENARY.

THE centenary celebration of the Zoological Society of London took place in the Great Hall of University College on April 29th. The president of the society, the Duke of Bedford, occupied the chair, and congratulatory addresses were presented by the representatives of learned societies in seven countries. Among those on the platform were the French and Italian Ambassadors, a representative of the German Ambassador, Viscount Grey, the Earl of Onslow, Sir Ernest Rutherford, President of the Royal Society, and representatives of many scientific bodies.

Historical Surveys.

The DUKE OF BEDFORD gave a brief account of the history of the society from the more popular side—that is, the development of the gardens and the menagerie—leaving it to Dr. P. Chalmers Mitchell, the secretary, to speak of scientific achievements. He mentioned as one example of the forward look of the society that as far back as 1829 it made women equally eligible with men as Fellows; in fact, the senior Fellow of the society at the present moment was a lady, elected in 1865. Each sovereign in turn, from George IV onwards, had been a patron of the society and had enriched its collection with gifts. It was an encouraging fact that at this one hundredth annual meeting it should be possible to report that the number of visitors to the gardens last year (2,225,000) and the present number of Fellows (8,067) should both be at high-water mark.

Dr. CHALMERS MITCHELL then followed with some description of the society's scientific work. He mentioned that the first list of items in the collection a hundred years ago included 43 species of mammals, 98 of birds, and one of reptiles; the centenary list comprised 949 species of mammals, 2,330 of birds, and 1,174 of reptiles, amphibia, and fishes. The society had also introduced to science, by inadvertence rather than design, many new and curious subjects of the animal kingdom, comprising a greater number of species than all the animals legitimately in the gardens. These were the external and internal parasites—inhabitants of skin, fur, and feather, of intestinal tract, blood, and internal organs of wild animals. The importance of these parasites was only beginning to be understood,

and although they had been collected and named intermittently throughout the history of the society, it was only during the last dozen years, under the direction of Professor Leiper, that they had been systematically studied, the study adding greatly to scientific knowledge. A large part of the usefulness of animals to science, Dr. Mitchell continued, began after their death, and the bodies of the society's animals had furnished valuable material for the study of comparative anatomy. He mentioned some famous anatomists and physiologists of the past who had worked in connexion with the gardens, among them Thomas Bell, Huxley, and Victor Horsley. Among living men of eminence in this field, Sir Arthur Keith, Professor Elliot Smith, and Sir John Bland-Sutton had all acknowledged their indebtedness to the prosectorium. It was largely owing to the influence of Huxley that the prosectorium was established, and the prosectorship had been filled by a succession of men of great ability. Pathological investigation into the cause of death was an integral part of Huxley's scheme, and although it faded out for a time, in 1903 pathology was restored to its proper place, and a pathological post added to the prosectorium; this post also had secured brilliant occupants. After touching on the way in which the society had advanced zoological knowledge in consequence of its publications, Dr. Mitchell mentioned that at one time it maintained a museum which kept systemic zoology alive during the "dark ages of Bloomsbury," before the renascence came with the setting up of the Natural History Museum at South Kensington. In recent times he claimed that the society had done much to advance animal physiology; he knew that the mention of "physiology" opened the floodgates of apprehension, but physiology had no specific relation to laboratory research. It implied simply observation of the habits of living animals, breeding, acclimatization, and the investigation of hygiene in its widest sense. The relations of animals to their environment had been studied, especially as regards fresh air, heat, light, and food. Some of the work carried out was pioneer experiment based on the investigation of animal physiology, and here he thanked Dr. Leonard Hill, of the Medical Research Council, for invaluable assistance in the effort to apply correct physiology to the welfare of animals.

Congratulatory Addresses.

Addresses of congratulation were then presented. Sir CHARLES SHERRINGTON, for the Royal Society, spoke of the long and honorable record of the Zoological Society in the promotion of research and exploration. The society combined, as few scientific societies could combine, the pursuit of science with popular interest, and what greater proof of popularity could there be than to bring about a distortion of the language, as in the word "zoo"? He found the gardens an admirable place for the exercise of that supremely human prerogative—contemplative curiosity. M. CHARLES GRAVIER brought the felicitations of the Académie des Sciences and the sister institution of France. Mr. H. H. DIECKHOFF, representing the German Ambassador, spoke in grateful terms of the help which British zoologists had afforded in establishing the many collections in German cities. Dr. CASEY WOOD conveyed the greetings of the Smithsonian Institution at Washington, reminding the company that that institution owed its foundation and endowment to an English chemist who never saw America. In trying to carry out James Smithson's ideals the institution had taken pattern by the Zoological Society, though without its unrivalled opportunities for obtaining specimens. Dr. JORDAN, from the Royal Academy of Sciences, Amsterdam, made a plea for scientific internationalism. Professor COSSAR EWART brought the greetings of the Royal Society of Edinburgh, while having to acknowledge that there was very little to be said about zoological work at present in Scotland; and, finally, Professor A. F. DIXON, representing the Royal Irish Academy and the Zoological Society of Dublin, expressed the thanks of the latter body for much valuable co-operation.

Sir JOHN BLAND-SUTTON, in proposing a vote of thanks to the president, made some characteristically whimsical remarks about the antiquity of zoological science. Eden, he said, was the first zoological garden, and Adam, the keeper, had the privilege of naming the animals without being embarrassed by priority in nomenclature. The first travelling menagerie was undoubtedly that of Noah, whose ability to get the animals to go two and two into the ark must have been the envy of every superintendent and keeper since. Zoology was studied to-day as a part of natural history, also for comparative anatomy, and in relation to pathology, even human pathology. From the beginning of its existence the society had been hampered by its environment, but now it had acquired a valuable zoological park at Whipsnade in Bedfordshire, where observations—he did not like to use the word "experiments"—would be carried out likely to throw a good deal of light still upon the origin of species, and particularly in regard to the infertility of hybrids, which had never yet been explained.

Dinner at the Zoological Gardens.

The formal oratory of the celebration was confined to the afternoon gathering, but a private dinner party was held in the evening at the society's gardens in Regent's Park, when the Duke of Bedford presided over a very distinguished company, which included H.R.H. the Prince of Wales. Among prominent representatives of medicine who accepted invitations to the dinner were the following:

Sir John Rose Bradford (President, Royal College of Physicians), Dr. H. H. Dale, Dr. F. G. Dawtrey Drewitt, Sir Walter Fletcher, Sir Archibald Garrod, Lieut.-Col. A. E. Hamerton, Professor Leonard Hill, Sir Arthur Keith, Professor R. T. Leiper, Dr. G. C. Low, Mr. V. Warren Low (representing the President, Royal College of Surgeons), Mr. P. H. Mitchiner, Dr. S. Monckton Copeman, Professor F. G. Parsons, Dr. Charles Porter (M.O.H., Marylebone), Sir David Prain, Sir Charles Sherrington, Dr. G. Sowden (M.O.H., St. Pancras), Sir John Bland-Sutton, Dr. G. M. Vevers, Dr. C. M. Wenyon, Professor William Wright, and the Editors of the *Lancet* and the *British Medical Journal*.

Union of South Africa.

[FROM OUR CORRESPONDENT IN PRETORIA.]

Radium.

THE Federal Council of the Medical Association of South Africa (B.M.A.) has on more than one occasion recently drawn attention to the desirability in the public interest of a supply of radium which shall be available for the use of such hospitals in the Union as possess the services of competent radiologists. The public imagination has been stirred, perhaps to an unwarranted extent, by the therapeutic possibilities of radium. Difficulties have, however, arisen owing to the cumbersome organization of medical services. Appeals made to the central Government have been referred to the provincial administrations which are responsible for the provision of hospital supplies. The provincial administrations point out that the matter is one to be dealt with by the individual hospital boards, and that they have to wait on these boards to put up the case for the provision of radium. The sympathetic interest of some of the provincial Governments has, however, been aroused. In the Cape Provincial Council on March 25th, the Kimberley member drew attention to the many millions of pounds being spent in the Union on cattle diseases, the destruction of locusts and vermin, and on the eradication of noxious weeds. In view of funds being so readily available for these purposes, he asked if the administrator would not approach the Union Government in the cause of suffering humanity with the object of obtaining not less than £25,000 for the purchase of radium for the principal hospitals of the Union? Failing this, would the administrator place a similar sum on the current year's estimates of the Provincial Council for the purpose? The administrator, Mr. Fourie, replied that investigations into the efficacy of radium treatment were being instituted, and the request of the Kimberley member would be considered when the inquiries were complete. A hospital radium fund is in existence in Johannesburg to which sums have been privately contributed. Recently the sum of £10 was presented to it by the Johannesburg Clinical and Pathological Club.

Further Plague Cases.

Plague continues to spread in waves among the veld rodents, and periodically a crop of human cases is announced in an area containing infected rodents. On March 22nd the Minister for Public Health made an official announcement as to the position. During January an active recrudescence of plague in veld rodents commenced in the northern portion of the Orange Free State, spreading eastward and northward from there. In the affected area eight human cases, including one European,

occurred. During February there were two further cases, both in natives. Field surveys carried out by the Union Health Department and the Johannesburg municipality showed that the infection in veld rodents had spread to the little village of Meyerton and the southern boundary of the Germiston municipality, both of which areas abut on the Johannesburg municipal area. During the present month fifteen native cases with fourteen deaths have occurred in the area immediately south of the Vaal River. Dr. Hauptfleisch, district surgeon of Parys, who had been actively engaged in the work in this area, also became infected, and had to be removed to the Rietfontein Hospital for Formidable Epidemic Diseases. The Minister's announcement that Dr. Hauptfleisch was making good progress was greeted with applause. The Union Health Department has established a field hospital south of the Vaal River. On March 21st an itinerant native was found sick of plague north of the Vaal River, but this is the only case so far reported on the Johannesburg side of the river. Conferences have been held between officers of the Department of Health and those of the Johannesburg and other Reef municipalities. All of these bodies are actively co-operating to prevent further spread. The chief danger continues to be the extension of infection from veld rodents to town rodents. A great deal has, however, been done by most of the Reef municipalities during the past three years to exclude rats by the rat-proofing of all buildings where material attractive to rodents is stored. Rat-free zones round the urban areas have also been maintained.

Mass Thermometry.

The medical supervision of large groups of natives employed on the gold and coal mines of the Transvaal involves many practical difficulties. At present the only examination made periodically on all the native employees is the determination of their weight. These weighings are generally carried out by a lay hospital superintendent. Individuals with even slight loss of weight are then picked out for detailed clinical examination by the mine medical officer. Loss of weight is of very obvious significance to a medical officer who is continually on the alert for incipient phthisis. Sir Spencer Lister, director of the South African Institute for Medical Research, has now devised a method for ascertaining the body temperatures of these workers in bulk. By this method it will be possible rapidly to pick out for further clinical examination any individuals with abnormal temperatures. This may prove a useful adjunct to the present system of periodic weighing for the detection of tuberculosis. Instruments are already in use for recording continuous temperatures in human subjects for experimental purposes, but this is apparently the first time that the principle involved in such instruments has been adapted for mass clinical purposes. The experiments for determining the best means of putting into effect the principle that Sir Spencer Lister has devised were carried out by Professor A. V. Hill of London, and the apparatus was put together by two of his assistants, Messrs. J. C. Parkinson and A. C. Downing. The apparatus at present used consists of fifteen thermo-couples, a dead-beat moving-coil galvanometer with a reflecting mirror which is interposed in the electric circuit, a thermostat, a switchboard connecting the fifteen thermo-couples with the galvanometer in such a way that each thermo-couple can be placed independently in circuit with it by turning over its corresponding switch, a calibrated scale upon which are recorded the movements of the light spot reflected from the mirror attached to the moving coil of the galvanometer, and a suitable electric lamp for the illumination of the mirror on the coil of the galvanometer. By means of this apparatus obvious variations from the normal temperature can quickly be detected among individuals of large groups of persons. The apparatus, which Sir Spencer has willingly demonstrated to various interested persons, enables fifteen individuals each to place simultaneously the hot junction of one thermo-couple beneath the tongue or in the axilla. When any one switch is closed the moving coil is deflected, the deflection being recorded by the movement of a spot of light on the calibrated side. With the switch open—that is, with no thermo-electric current flowing—the light spot takes up a position at an arranged zero point on the scale. Sir Spencer suggests that this principle of rapid clinical thermo-electric thermometry may find useful application in large hospitals, saving much of the time and labour involved in the present use of maximum clinical thermometers. If it could be made more compact and portable it would be invaluable to port health officers, who are frequently called upon to take the temperature of passengers and crews of large steamships.

India.

Transmission of Plague by X. cheopis.

IN a leading article on the international control of plague (February 2nd, p. 213) it was suggested that the reports collected on behalf of the International Health Office, and introduced by Professor Ricardo Jorge, while leaving little doubt that the rat-flea, *Xenopsylla cheopis*, is the most important transmitting agent, fail to settle the vexed question of the part played by *X. astia*. We noted that, though the work in Ceylon of Dr. L. F. Hirst, city microbiologist to the Public Health Department of Colombo, would seem to acquit *X. astia* of serious harm, Graham and Mital, reporting from India, gave data which were difficult to reconcile with that flea's innocence. We have now received from Dr. Hirst the following additional information.

The results of a rat-flea survey of such an area as the United Provinces are not comparable epidemiologically with my findings in the lowlands of Ceylon. The climate of the United Provinces is characterized by violent seasonal fluctuations in atmospheric temperature and humidity, and there are corresponding variations in gross rat-flea prevalence from about two per *R. rattus* during the height of the hot season to about twenty during the season most favourable to rat-flea reproduction. *X. astia* and *X. cheopis* are both indigenous to the Indo-Gangetic plains, and *X. cheopis* is present in sufficient numbers for plague propagation. The climate of low-country Ceylon is, on the other hand, equable and humid, the mean temperature is very near the upper limit favourable for plague transmission by *X. cheopis*, and the gross flea index averages from 2 to 4. So far *X. astia* alone has been found in the plague-immune lowlands of Ceylon outside Colombo. *X. cheopis* is a foreign invader imported with grain and other forms of merchandise; its distribution and prevalence in Colombo are closely correlated with human and rat plague. Plague is endemic only in that small area near the harbour where *X. cheopis* is relatively numerous; the importation of small numbers of *X. cheopis* into an *X. astia* area has frequently been followed by sporadic outbreaks of plague, which, however, have shown no tendency to spread.

In the lowlands of Ceylon, with their relatively stable rat-flea population, the percentage of *X. cheopis* among the various local collections of rat-fleas may be correlated with the corresponding local incidence of plague, though even here, from a strictly biometric point of view, it is much sounder to adopt the *X. cheopis* index (average number of *X. cheopis* per rat) as the criterion of flea prevalence. I am well aware of the theoretical objections to using specific flea indices as a comparative measure of flea population, but maintain that the method is adequate for the purpose in view. The Colombo data as set forth in my memoir[1] on researches on the parasitology of plague have been submitted to Professor M. Greenwood, who finds "no substantial ground for statistical criticism."

In the United Provinces crude percentages of *X. astia* and *X. cheopis* in local collections of rat-fleas cannot legitimately be correlated with the corresponding variations in plague incidence. The curves of *X. cheopis* and *X. astia* seasonal percentage variation shown in Dunn and Mital's original report fail to represent correctly the real fluctuations in the flea population of the respective species. I have criticized their flea survey technique in the above-mentioned memoir. The original report of the results of the United Provinces survey contains the following comment by Lieutenant-Colonel J. Taylor, I.M.S., formerly a member of the commission for the investigation of plague in India: "The report would be much more valuable if the average number of fleas per rat had been recorded monthly, and as it stands it is not possible to say what the maximum prevalence of such species may be. The flea curves have been found of the greatest value by the plague commission in relation to the seasonal prevalence of plague and to some extent to severity of outbreaks and likelihood of epidemic plague." I heartily concur, but would it not have been better to publish these criticisms in the *Bulletin* of the International Health Office?

[1] Published in Colombo, 1927.

Curves showing the seasonal prevalence of all species of fleas in such localities as Lucknow, Cawnpore, and Banca can be constructed from the data contained in the report by Norman White and Gloster on the epidemiology of plague in the United Provinces. Unfortunately Rothschild[1] had not published his paper on the Indian *Xenopsylla* at the time when these observations were made. *X. cheopis*, *X. astia*, and *X. brasiliensis* were not distinguished as separate species in any of the reports of the Indian Plague Commission; all *Xenopsylla* were identified as *cheopis*. When the percentage figures for these localities given by Dunn and Mital are converted, with the aid of the gross flea index data supplied by White and Gloster, into specific flea indices, it is seen that the curve of *cheopis* prevalence fits that of plague seasonal incidence more closely than does the *astia* curve. Dunn and Mital would have done better to complete the preliminary rat-flea survey of the United Provinces begun by Cragg in 1921, using as the criterion the percentage number of *X. cheopis* and *X. astia* during the plague season, and then, taking into account all the relevant factors, concentrate on the study of the relation between seasonal prevalence of rat-fleas and of plague in carefully selected areas.

The northern plains of India are, as a whole, unsuitable for the investigation of the relationship between *X. astia* dominance and regional immunity to plague. Towards the south-west of the Punjab the relative immunity is probably due rather to the effect of an intensely hot, dry climate on the survival of infected rat-fleas than to *X. astia* predominance; in part of Bengal it may be attributed to scarcity of rats, and lack of communication with infected areas.

Until we know more of the factors which influence the relative transmitting power of flea species in a state of nature the results of transmission experiments under artificial conditions cannot lead to definite conclusions. Attention may, however, be drawn to the findings of Armath Goyle[2] in Lucknow, which confirm the conclusion based on my Colombo experiments that under tropical conditions *X. astia* is inferior to *X. cheopis* as a transmitter of plague.

Dr. Hirst adds that he has just completed a fresh rat-flea survey of Colombo, supplemented by observations in hill and low-country Ceylon. He thinks that there is a slight but definite extension of the *cheopis* areas, and therefore of the potential zones of plague endemicity. He suggests that a similar slow process of *cheopis* infiltration of originally pure *astia* territory is taking place in several parts of India as a result of commercial intercourse with *cheopis*-infested stations, and remarks that if this is the case the relative immunity from plague hitherto enjoyed by the inhabitants of the *astia* zones is doomed to disappear.

Preventive Medicine in Assam.

Two striking instances of the value of prophylactic medical measures are given by Lieut.-Colonel T. D. Murison, director of public health in Assam, in his report for the year 1927. Although the problem of the transmission of kala-azar remains unsolved, there is thought to be a reasonable possibility of eradicating this infection, provided that the campaign against it is pressed in the future with no less energy than is the case at present. In June, 1927, universal or mass treatment of all kala-azar patients with urea stibamine was instituted consequent on a marked reduction having been effected in the cost of this preparation; previously only 10 per cent. of the patients had been so treated, the remainder having received the less effective sodium antimony tartrate. The change of treatment resulted at once in a most gratifying increase of cures and a more regular attendance of patients at treatment centres. In a certain district, for example, a survey of villages served by one dispensary was conducted; all persons suspected of kala-azar infection were examined, and treatment was started at once when the disease was detected. Prompt improvement in the incidence of infection followed, and, later on, after another very careful survey, it was found possible to close the dispensary. This active searching for disease is carried on wherever kala-azar appears or is suspected, and the results are most promising. In some districts such surveys are of vital importance, since the patients live far from the hospitals and few come forward voluntarily for treatment; but for this careful investigation numerous cases would be overlooked and serve as foci of infection. The great danger in the future appears to be that these efforts may be relaxed in view of the lessened incidence of outbreaks, and a serious warning was given by Major H. E. Shortt, I.M.S., director of the Kala-azar Commission, to members of the Health Interchange of the League of Nations, who visited Assam early in January, 1928. Within another two or three years, he said, kala-azar would probably have reached again the comparatively low level of the inter-epidemic periods. During the progress of an epidemic it was quite easy to raise large sums of money and to excite public interest in measures of treatment and prevention, and, therefore, full advantage should be taken of the existing public interest during the next year or two, so that the few remaining embers of infection left behind as the result of the present epidemic might be extinguished. Major Shortt added that this was the first occasion on which any effective treatment had been available for kala-azar, and that therefore the next few years were likely to be highly critical in view of the fact that if intensive measures were continued they would have a more far-reaching effect than had ever been possible before. In another part of Lieut.-Colonel Murison's report attention is called to the rise in the cholera mortality in Assam during 1927, as in other parts of India. As the result, however, of mass inoculation with anticholera vaccine being undertaken, the death rate had been considerably lower than could have been anticipated. At first it was thought that the spread of the infection was due to infected milk, and certain preventive measures were adopted, but this view was subsequently found to be erroneous, and, eventually, the infection was traced definitely to the water supply. Immediately on the receipt of notification of a case of cholera, disinfection of wells in the area and inoculation of contacts were secured, guards being placed over the wells, and care being taken to supply only uncontaminated water to the inhabitants of infected localities. The epidemic was quickly brought under control, though a temporary isolation hospital had to be erected in one district. Elsewhere numerous outbreaks were quickly suppressed by these preventive measures, though in one case delay in notification allowed the disease to get a firm foothold for a short time. The increased success which rewarded these efforts in 1927 is attributed to the use of inoculation on a large scale.

[1] *Bulletin of Epidemiological Research*, vol. v, p. 83, 1914.
[2] *Indian Journal of Medical Research*, vol. xv, p. 837, 1928.

Ireland.

Enteric Fever in Leitrim.

DR. P. MCDONNELL, medical inspector, Department of Local Government and Public Health, attributes the recent epidemic of typhoid fever in Carrick-on-Shannon, which resulted in some deaths, to the water supply and the want of sanitary organization. Dr. McDonnell, in a report addressed to the Leitrim Board of Health, traces the outbreak to the water supply, the infection having been introduced through the defective methods of disposing of the sewage from Carrick-on-Shannon fever hospital, coupled with the faulty condition and surroundings of the pipe line by which the town water is conveyed to the pumping station and the reservoir. He went to Carrick-on-Shannon on the report of the medical officer of health that there was a severe local epidemic of influenza with typhoid symptoms. Influenza had been prevalent, and those who recovered were stricken down in four or five days with what was at first believed to be a relapse of influenza. A patient sent to Roscommon Infirmary was found to be suffering from enteric fever, and this appeared to be the first indication of the presence of a typhoid infection. Dr. Walsh, the local medical officer of health, was amongst the patients, and Dr. McDonnell visited several cases, accompanied by Drs. McDermott and Doorly, and Professor Meenan, professor of medicine in the National University of Ireland. After examining five or six cases they concluded that they were dealing with an outbreak of enteric fever. Discussing the origin of the outbreak, Dr. McDonnell says that the water supply is taken from the River Shannon by a pipe not more than fifteen feet from an open drain, which is the channel through which the fever hospital sewage passes,

Holes and defects in the pipe line, and excavations made for leakages, he believes, would give direct connexion with the sewage in the drain. From January 9th to March 14th eight typhoid cases from Ballinamore were treated in the fever hospital. The disposal of the fever hospital sewage constituted a disgustingly foul cesspool. The overflow passed through a network of drains, which finally emptied themselves in the Shannon parallel to the intake of the water supply. Dr. McDonnell suggests the steps that should be taken to remedy the defects in the water supply, and recommends a new source of supply from Corbally Lake, because as long as the people are depending upon the Shannon for their water supply they will be in danger of an epidemic. The village of Leitrim is only four miles from Carrick-on-Shannon, and the occurrence of even one case of enteric in this village would be a serious menace to the health of the people of Carrick-on-Shannon. Dr. McDonnell adds that if the county had the services of a county medical officer of health with a trained sanitary staff this outbreak could not have occurred, and the prevailing conditions in Carrick-on-Shannon would not have been permitted to exist for twenty-four hours. He regards the employment of untrained sanitary officers as one of the gravest defects in the county organization, and draws attention to the neglect on the part of medical practitioners to fulfil their statutory obligation of notifying infectious diseases. The Board of Health decided to expend at once £500 to remove the sources of pollution of the water, and to increase the supply. They further decided to ask the Local Government Department for a grant in aid in view of the loss sustained.

Montgomery Lecture in Ophthalmology.

Mr. Louis E. J. Werner, M.B., D.O.M.S., the Montgomery lecturer for 1929, delivered an address on "The slit-lamp in clinical practice," before a large audience in the Physiological Laboratory of Trinity College, Dublin, on April 25th. The lecturer first described the mechanism and means of employment of the slit-lamp, and then dealt in detail with its use in both diagnosis and prognosis. He insisted on the fact that the slit-lamp was no mere clinical toy, but that it yielded important information which could not be obtained by any other available means. He himself had found it of much value in distinguishing between optic neuritis due to intracranial pressure and optic neuritis of inflammatory or toxic origin. In the former group of cases little or no change was found in the vitreous, while in the latter group extensive cellular infiltration of the vitreous was constantly noted. He had also found it of great use in cataract cases, more particularly by enabling him to distinguish the type of early case in which immediate operation was advisable from the type in which delay should be recommended. Many illustrative cases were quoted to demonstrate points in connexion with the use of the lamp in corneal disease, diseases of the anterior chamber, and diseases of the ciliary body. The lecture was illustrated throughout by lantern slides.

Retirement of Dr. E. C. Thompson.

Dr. E. C. Thompson, who has resigned his appointment as surgeon to the Tyrone County Hospital after forty-four years in that capacity, in which he followed his father, has been the recipient of many expressions of appreciation from his medical colleagues and numerous friends in Tyrone, where he was a deputy lieutenant. The material gifts included: a silver tea and coffee service, a silver cup, an illuminated address, and a cheque. For ten years Dr. Thompson was chairman of the Tyrone Medical Committee, and he was largely responsible for the formation of the Tyrone Division of the British Medical Association, of which he has been chairman and representative; he was also vice-president of the Ulster Branch from 1910 to 1923. He has been a member of the Association since 1876. Dr. Thompson has represented North Monaghan in the House of Commons, and took an active part in framing the Local Government Board Amendment Bill of 1902. As the result of his intervention certain facilities were obtained for county councils which resulted in very vital financial benefits being made available for county hospitals in Ireland.

Scotland.

Suggested Improvements in Medical Education.

AN address was delivered at Glasgow University on April 22nd by Sir Norman Walker, who took as his subject "Medical education and qualification in the United States." Principal Sir Donald MacAlister, who presided, said that the Americans were not satisfied with their present system and were sending a deputation to investigate the methods obtaining in Glasgow and Edinburgh. The lecturer detailed the systems which obtained in this country and America, pointing out that in America each State was an authority to itself in making its laws and requiring the doctor to possess the licence of its own State board before passing. Many State boards demanded of students not only a degree from a first-class college, but one year's experience as resident in a hospital, and the lecturer thought the practice of holding intern posts in hospitals should be extended in this country. At the beginning of medical education in America the student went through a period of apprenticeship, covering generally about seven years. This system had failed in course of time, and gradually all over the continent there came into being colleges professing to teach medicine, of which there had been some 400 at various times. Many of these had been purely commercial undertakings, completing a course of medicine in a ridiculously short period, and some of them had contained no facilities for adequate teaching in medicine. A report on these institutions black-listed a number, which accordingly went out of existence. In 1910 there were still 121 medical schools in the United States, in 1925 the number had dropped to eighty, at which figure it now stood. There was a general feeling that the primary and secondary education in this country was better than that in America, but the preliminary requirements of medical schools in America were steadily rising, and now a two years' preliminary course had been introduced into fourteen schools, while one insisted on a four years' course. Many American schools limited their entry to the number of students they could efficiently teach. Thus in one year 11,000 students had applied for admission to twenty-three schools, which had accepted only 6,500. At present in America there was one doctor for every 763 people. In America the principle of frequent class examinations was carried out, and an elaborate system of card-indexing was used to follow the work of the student throughout his course. If the student's work was unsatisfactory, after a warning he was dismissed, and subsequently he found it difficult to enter any of the other schools. When the students graduated, 90 per cent. of them held passes as interns in hospitals, and the lecturer thought there was room in this country for more resident doctors, especially in the smaller hospitals. The American graduand was aged 27 before he could practise, in consequence of this long course, and a four-quarter system was being introduced in an attempt to reduce the period of training by one year. This system had advantages, but the lack of holidays entailed might, however, result in an undue strain being placed upon the student.

Red Cross Work in Glasgow.

At the annual meeting of the city of Glasgow branch of the British Red Cross Society the Lord Provost said that there had been considerable expansion in the work and an increase in the V.A.D. movement in the city. The registered detachments in Glasgow were continuing training with enthusiasm, and would be able to render first-class service if the need should arise. Colonel G. H. Edington, F.R.F.P.S.G., chairman of the branch, seconded the adoption of the report and pointed out that during the year five additional detachments had been formed. The strength of the original four detachments was 134, and the five new detachments would bring in an additional 155 members. One detachment had been raised in the Glasgow and West of Scotland College of Domestic Science, where its members got training in invalid cookery.

England and Wales.

The Paratyphoid Outbreak in London.

THE report of the London County Council's medical officer of health, dated November, 1928, on the outbreak of paratyphoid fever—which it was deemed expedient to mark "private and confidential," copies being distributed only to members of the council and to medical officers of health concerned or interested—is to be removed from the category of private documents and to be published. The report deals comprehensively with the serious outbreak of paratyphoid fever which occurred in London and adjacent districts in July of last year. Statistics giving very full information as to the number of cases and the investigations made in London are included in the report, and also, by the courtesy of the Minister of Health, statistics of cases outside the county. The Minister of Health has intimated that he does not desire to offer any objection to the publication of the report if the Council deems this course desirable in the public interest.

King Edward VII Sanatorium, Midhurst.

An attempt has been made to collate the results of treatment of pulmonary tuberculosis by the induction of pneumothorax at Midhurst since October, 1924; in 63 cases this operation was performed, and the after-histories to October, 1928, have been investigated, so that the statistics relate to patients from one to four years after such induction. In the twenty-second annual report of this institution an account is given of this investigation. In 19 cases, it is stated, the procedure was unsuccessful; in some cases because no pleural space was found or only a small pocket was struck, while in others the treatment could not be continued owing to the presence of many adhesions. Of the remaining 44 patients, 40 are still alive; 34 have now no expectoration, or tubercle bacilli are absent, but in 6 the sputum is still positive. Of these 6, 3 have been advised to have thoracoplasty, and one gave up treatment for no apparent reason. In 18 of the 40 cases the appearance of fluid has been a complication at one time or other during the treatment. Refills have now ceased to be necessary in 11 instances, and all these patients are in good condition. Laryngeal disease was found in 10 of the 63 cases, 2 of which were included in the 19 classified as "failures." One was cured by silence treatment, the other, in whom the disease was very advanced, remained stationary while under artificial pneumothorax treatment and died subsequently. It is believed that this research will eventually contribute useful information on the prognosis of those cases where the treatment failed, although the patient seemed clinically suitable. The work of the *x*-ray department is steadily growing, and its value has been particularly obvious in controlling the increasing number of cases of artificial pneumothorax. It has not infrequently proved useful in showing that patients believed to be suffering from pulmonary tuberculosis were really the victims of chest disease of some other kind. In the pathological department research on the sedimentation test has been continued, with the result that this test has now been adopted as a useful routine measure. It is proposed to study next the sugar metabolism in tuberculosis, and, in particular, the liability of tuberculous patients to diabetes; the sedimentation test is said to have given some interesting results in diabetic patients. The work of the statistical committee has been continued on the same lines as in previous years, and the familiar tabular statistics are again supplied.

The East End Maternity Hospital.

The East End Maternity Hospital maintains a free midwifery service for poor married women, and a centre for training midwives and nurses who attend at their homes patients unable to enter hospital. The report for the year ending December 31st, 1928, records the treatment of 1,276 in-patients—the largest number in any one year—but a slight decrease in the number of out-patients. The discrepancy is probably only apparent, and may be due to the fact that the mothers are realizing the benefit of entering hospital for their confinement. In the hospital, during the year under review, 1,256 infants were born alive, 36 were stillborn, and there were sixteen sets of twins. In the same period, 14,556 visits from midwives and 108 from doctors were paid to out-patients, and 788 mothers were delivered. On the district, 779 infants were born alive, 21 were stillborn, and there were twelve sets of twins. During the year no cases required Caesarean section or embryotomy, there were no cases of insanity, and no patients were removed to other institutions; there was one case of eclampsia in a woman who had neglected to come for ante-natal examination fourteen days before her confinement. Two patients died in hospital—one a patient sent in as an emergency case suffering from severe hyperemesis, the other a primigravida of 33 years, with valvular heart disease, who died of heart failure shortly after a prolonged labour. There were no deaths in the out-patient department. Among in-patients there were 55, and among out-patients 13 forceps deliveries, and puerperal pyrexia—that is, a mouth temperature of 100.4° F. or more for twenty-four hours—was observed in 17 in-patients and 5 out-patients. Attendances at the ante-natal clinic totalled 6,927. There were 21 cases of ante-partum haemorrhage among in-patients, 6 due to placenta praevia, and 15 to accidental haemorrhage. Twenty-one of the 1,256 infants born alive in hospital died, 10 within twelve hours of birth.

Correspondence.

THE UNITY OF TUBERCULOSIS AS AFFECTING DIAGNOSIS AND TREATMENT.

SIR,—It is not a little surprising—and it is certainly disconcerting—that at this stage in our knowledge of tuberculosis there still seems to remain hesitancy in the ordinary parlance of medicine as to the essential unity of tuberculosis in its various manifestations. The continued use of the adjectives "medical" and "surgical" in relation to tuberculosis is ill advised, and savours of days when the scientific conception of tuberculosis was nebulous. Thanks to the labours of a succession of workers, these days are happily past.

The essential facts in the natural history of tuberculosis have been pretty well determined. Tuberculosis results from the entrance of the tubercle bacillus into the body *at any point*. The effects of infection—local and systemic—are extremely various, and, as viewed clinically, may *emerge almost anywhere*. In respect of clinical course there is, subject to certain reservations, a remarkable analogy between tuberculosis and syphilis. Neither the tuberculologist nor the syphilologist can afford to regard his subject *in partial fashion*. Each stage in the pathological process and every clinical manifestation are within his sphere.

For the tuberculologist the methods of approach, alike in diagnosis and in treatment, are uniform, *whatever*, and *wherever*, the outward (clinical) expression of the infection may be. It matters little whether he has to deal with a superficial tuberculosis of skin or mucous membrane, or with tuberculosis of the skeletal tissues, or with tuberculosis of any one or several of the viscera. The common guiding principles of diagnosis, clinical and bacteriological, are well defined, just as are the guiding principles in the diagnosis of syphilis.

What is true of diagnosis is no less true of treatment. Certain principles and methods of treatment are applicable, with adjustment of detail, to the manifold expressions of tuberculosis, *wherever* these occur. Procedure, applicable to tuberculosis as such, is, of course, subject to modification and adjustment in different situations; and in some cases therapeutic measures applicable to all tuberculosis may require to be supplemented by special procedure because of the structure or tissue involved. Such addition, however, is accidental and not essential to the treatment of tuberculosis as such.

Of the value of tuberculin in the diagnosis of tuberculous disease, wherever situate, particularly when visible to the eye of the observer, there can be no manner of doubt. Its successful use depends, however, on skill and

experience in its application. This implies training and practice, which unfortunately is not available in every school. It is curious how tuberculin is apt to be turned down by men who have seldom used it themselves nor seen it used.

Certain physiological principles form the basis of treatment in tuberculosis and are serviceable more or less in all forms of tuberculosis. Their adjustment in detail requires consideration based on experience. This is likewise true of the therapeutic use of tuberculin, the value of which in suitable cases can hardly be questioned by anyone who has had extensive experience in its use.

It is a vast pity that so great a gap remains between the scientific conception of tuberculosis and the current manner of describing and handling its varying manifestations, each one of which is but *part* expression of *one* far-reaching infection.—I am, etc.,

Edinburgh, April 26th. R. W. PHILIP.

INTRACUTANEOUS TUBERCULIN TESTS.

SIR,—The only important point at issue between Dr. Camac Wilkinson and myself is as to whether the reactions reported by me as positive were really positive or not. Dr. Camac Wilkinson may feel capable of judging these reactions without seeing them; others, perhaps, may think his doing so a little rash.

The work is being repeated on very careful lines, and I hope that your readers (Dr. Camac Wilkinson apart) may be interested to hear my further findings in due course.—I am, etc.,

Cardiff, April 29th. S. LYLE CUMMINS.

SIR,—About twenty years ago I was asked to assist in the diagnosis of a supposed case of tubercle of the urinary tract. The bacteriological findings were negative. I then gave the patient a series of inoculations of tuberculin (B.E.) in increasing doses without any effect on the frequency of micturition. My experience had been that tuberculin even in small doses often aggravates the patient's discomfort in this class of case. I therefore advised that, as no evidence of tuberculous infection could be elicited in this way, the condition was probably not due to tuberculosis.

At the subsequent operation, however, some thickening of the hilum of the kidney was found; it was inferred that this was tuberculous, and the kidney was removed. On section a small stone was found; otherwise the kidney was normal.

Is tuberculin a valuable aid to diagnosis in this type of case? My own experience of tuberculin in diagnosis is too limited to permit a definite conclusion.—I am, etc.,

Manchester, April 29th. J. STAVELY DICK.

THE DISTRIBUTION OF RADIUM.

SIR,—Mr. Souttar's letter in your issue of April 27th (p. 787) upon the distribution of radium in accordance with the recent report of the Radium Subcommittee elaborates the view which I expressed in a letter published in your columns of December 8th, 1928 (p. 1064).

I feel most strongly that until much more experience has been obtained in the treatment of cancer by radium, and until some standardization of dosage, etc., has been established, the distribution of such a powerful remedy will require very great consideration, and the possibility of subdivision of the total quantity to place small amounts in the hands of many surgeons is much to be deprecated. Rather let the distribution, at all events in the first place, be made to such hospitals as have the facilities for using it to the optimum purpose, and are already equipped with a staff experienced in the use of radium and also with a powerful *x*-ray apparatus. We at the Cancer Hospital have found, for example, that it is necessary not only to have special radium officers, but also special research pathologists and a physicist attached to the radiological department.

In the treatment of superficial carcinomata which afford a ready access considerable technical experience is necessary, and for the treatment of deep-seated or intra-abdominal growths it is probable that the direct insertion of emanation capsules, or the treatment "at a distance" by intensive surface applications, will be found more advisable than the burying of needles of radium or its salts into the growth. For both the emanation and the "distant treatment" a greater quantity of radium is required, greater than that possessed in any hospital in England at present; for this purpose in New York, Paris, and Stockholm an amount of four grams and upwards is used. Though I cannot agree with Mr. Souttar that "the whole future of radium treatment lies with emanation," I consider that this method has its uses; a longer experience will alone decide, not only the particular histological form of growth that is amenable to radium treatment, but also the kind of treatment most applicable to each.

I am fully in accord with Mr. Souttar that it is desirable to provide main centres where both hospital and private patients can be treated, and in which accurate observations can be recorded on a number of cases by trained observers; in this way centres may be formed in Britain which will adequately compete with the favoured few abroad.—I am, etc.,

London, W.1, April 29th. R. H. JOCELYN SWAN.

POST-GRADUATE INSTRUCTION IN MIDWIFERY.

SIR,—I am interested in Professor Fletcher Shaw's letter on this subject in the *British Medical Journal* of April 27th (p. 788). If an average of from five to six confinements daily for a week is an intensive course in midwifery the general practitioner can get it in most maternity hospitals. At the Rotunda there were over 2,000 cases in the intern maternity during the past year, and the post-graduate courses continue all the time. There is, in addition, an extern maternity, of somewhat similar figures, in connexion with most institutions. Probably residence for a week in a hospital may be of a *little* assistance, but I do not believe that much real value will be gained under a month. Needless to say, the longer the stay the greater the value.—I am, etc.,

BETHEL SOLOMONS,
Dublin, April 29th. Master of the Rotunda Hospital.

EFFECTS OF DEEP *X* RAYS ON THE CELLS OF THE BLOOD.

SIR,—The letters in your recent issues from Dr. Paul Cave and Dr. J. H. Douglas Webster rightly call attention to a statement in our paper which, taken by itself, would be too sweeping in character. Our remarks must, however, be considered in relation to the particular type of disease which we had under observation. The cases complicated by sepsis to which we referred were those which, from the nature of the disease, require a series of five or more full-dosage radiations within a period of a few days. It has, however, been found by experience that these patients generally do badly if so treated, and, more or less empirically, the procedure, as Dr. Webster points out, has been adopted of giving fractional doses spread over longer periods. As a control in these cases observation of the phagocytic power should prove of great value.

Our statement would certainly not apply to the treatment of localized infections where the total dosage employed is comparatively small. As Dr. Webster remarks, it is the quantity and not the quality of the rays absorbed that is probably the deciding factor, and the experiments of Dr. Knott and myself appear to show that it is the absorption of the secondary radiations which is of greatest importance. One has not infrequently seen resistant areas of furunculosis, septic glands, infected alveoli, etc., heal completely within a few weeks as a result of a single short application of deep *x* rays. Should, however, numerous radiations be given, or wide areas of the body require to be treated, then the possibility of lowered phagocytic power would come into question. As to the mechanism of the beneficial effect of brief radiation on the septic lesions mentioned, one might suggest that the temporary hyperaemia produced should give increased opportunity for the diapedesis of phagocytic cells, and in this sense the *first* effect of *x* rays in light dosage may quite possibly be stimulant. This

point we did not attempt to investigate, our experiments being concerned only with the frankly destructive effects associated with the larger doses necessary in the treatment of such diseases as the leukaemias and deep-seated neoplasms.—I am, etc.,

London, W.1, April 21st. W. L. WATT.

THE CURABILITY OF ASTHMA.

SIR,—You published on December 25th, 1926 (p. 1221), an article by myself on "Instinct and functioning in health and disease," and your interesting leading article on "The curability of asthma" on April 27th (p. 776) induces me to recall it to the minds of your readers. In it I endeavoured to give a short account of what I consider to be the epoch-making work of F. M. Alexander; to show that, according to his views, man, guided largely by the instinct of his tree-dwelling ancestors, fails to function to the best advantage in his modern environment, and particularly in a sedentary environment; that disease is associated with wrong functioning; and that, incidentally, disease or at least symptoms of disease, disappear or tend to disappear with improvement in functioning.

Your article encourages me to repeat this. From observation I have been driven to the conclusion that asthma in cases I have observed was associated with bad functioning—defective methods of sitting, walking, standing, breathing, etc.—and that asthma, or at least the symptoms associated with asthma, disappeared in process as improved functioning was acquired. If these observations could be repeated so as to enable a generalization to be established—and, *a priori*, the possibility of such generalization is likely—then "cure" of asthma can confidently be expected. Such cure would be a real one, for it would mean the removal of the primary and not the secondary cause of the disease.

I have "cured" cases of asthma by removal of spurs from nasal septa, but, as you point out in your leading article, such "cures" are not real ones, since the underlying conditions, which irritation from a nasal source tends to precipitate in the form of an attack of asthma, remain. No one recognizes this more than I, and it is because I do so recognize it that I urged and again urge on the medical profession the investigation of methods which seem to me to have at least some relation to a real cure in this, as in other conditions of disease.—I am, etc.,

York, April 28th. PETER MACDONALD.

THE CIRCULATION UNDER THE SPHYGMOMANOMETER CUFF.

SIR,—May I beg the opportunity to comment on Professor Hill's letter (April 20th, p. 745) and at the same time on Dr. Pines's contribution, which came too late for me to deal with in my reply of April 6th (p. 664).

I am very glad to have Professor Hill's assurance that the method used by him "is the same in principle as that of the sphygmomanometer"—on that I rely. That method shows, in the final stage of a rising pressure in the cuff, when the normal circulation has come to a standstill, that "the blood is squeezed out, *the direction of flow being reversed in the artery*" (my italics). This is crucial, for the presence of a reversed flow eliminates the possibility of an impervious main artery; that is my contention, the blood being an incompressible. It must also be noted that the flow of a liquid is inevitably towards the point of least resistance, and this we have seen is situated at the mouth of the brachial at the upper edge of the cuff.

It is true that I did not allude to the difference of pressure in systole and diastole, but it had not been overlooked, nor the closure of the artery during each cardiac cycle from the time when the cuff pressure begins to exceed the diastolic pressure, *as taught*. But to have pursued the subject would have needlessly complicated matters, since my immediate concern was the state of the artery when the cuff pressure had exceeded the systolic pressure.

Dr. Pines's letter drew attention to the interesting observations of Professor Bailliart on the effect, upon the vessels of the disc, of a rising pressure exerted upon the globe of the eye—the artery collapses (is obliterated) rather suddenly when, presumably, the intraocular tension surpasses the arterial pressure. Professor Hill says these effects are exactly what he sees in the web of the frog's foot (though I could find no reference to a *reversed* flow in Bailliart's report); and he considers that this proves the obliteration of the brachial artery in similar case. Dr. Pines holds the same view.

The fallacy in this conclusion (accepting the eye experiment as the counterpart of the sphygmomanometer procedure) seems to me to lie in arguing from a minute local effect to an effect on a scale vastly greater. Thus the effort necessary to shift the blood contained in the artery of the disc (Bailliart limits the effect to the disc) must be incredibly small, as compared with that required to shift the relatively vast volume of blood contained in the brachial artery and its branches. It is the inertia of this mass of blood and the resistance of the walls of the containing vessels which oppose the obliteration of the artery. *Evacuation must precede obliteration*, and, with only a surplus pressure of a few millimetres of mercury as driving force, the time required to yield an appreciable effect must needs be considerable; therefore the blood pressure trial will be over and done with long before any perceptible alteration in the calibre of the larger arteries will have occurred—they will still be widely patent. Time, then, is of the essence of the situation.

Finally, if this be true, is it thinkable, when the cuff pressure begins to exceed the diastolic pressure, that within the time limits of the single cardiac cycle, say one second, the artery will momentarily suffer obliteration?—I am, etc.,

London, W.1, April 23rd. HARRINGTON SAINSBURY.

THE GENERAL PRACTITIONER AND HOSPITAL TREATMENT.

SIR,—In reading the Annual Report of Council in the *Supplement* for April 20th, I find in Appendix XI, Part II, paras. 7 and 8, an attitude that I feel general practitioners should not accept without challenge. It is tacitly assumed that a large number of out-patients are foisted on to hospitals by insurance practitioners, who should be doing the work themselves. This may or may not be so, but it is not by any means the whole story. I, personally, have always regarded a hospital as a place to send a patient either for a second opinion or for special treatment I cannot give; chiefly for a second opinion. I have always sent a letter with the patient with full details and a clear statement that I want a second opinion only.

Now some hospitals are very good indeed and their honorary staff must give an endless amount of their private time to correspondence about hospital patients, but others simply absorb the patient, of whom one hears no more. One large hospital makes a routine practice, in reply to such a letter, of sending a printed form: "Dear Sir, Your patient, Mr. So-and-So, has been accepted for treatment in the out-patient department." In consequence, any interesting cases I have go elsewhere. Other hospitals apparently put one's letter in the waste-paper basket and go on indefinitely "rep. mist."-ing till the patient sickens of going there.

The whole trouble is that the hospitals have no organization for acting in a consultant capacity. Unless individual members of the staff answer letters privately it is not done. There should be a stenographer in attendance at the out-patient department and a definite system to see that all doctors' letters are answered, that the patient is *not* encouraged to come again by being given an out-patient card, and that he is not lost in the mob which besieges the casualty box and receives a gallon of medicine as a placebo. And if a patient is sent to a hospital for special treatment he should have it unless there is a good reason to the contrary. It is not essential to put him first for trial on to the ordinary treatment which he has been having for some time and which has failed. His family doctor should be credited with a little sense.

My point is not a criticism of the honorary staffs, but a criticism of the method, or lack of it, by which the consultative function of the hospital depends on their individual energy in their private time, and is not organized by the governing bodies of the hospitals.—I am, etc.,

Southborough, Kent, April 21st. W. EDWARDS, M.D.

TONSIL PUNCTURE.

SIR,—We are obliged to Drs. Cronin Lowe and Hugh Smith for their interesting comments on our paper. These observers naturally prefer their own methods in the investigation of pathological material, while we prefer ours; but we cannot agree with them on the question of the collection of the material from the tonsil. The use of a platinum loop in a tonsillar crypt may be possible and advisable (1) if the observer wishes to ascertain the condition of the crypt as distinct from the tonsil as a whole, and (2) if, in investigating the crypt, the latter is sufficiently visible and wide-mouthed to admit the loop.

In our paper we gave reasons for judging that the appearance of, and bacteriological findings in, a crypt may lead to fallacious conclusions as to the true condition of the tonsil. In our experience the tonsil which is most difficult to assess, as regards its pathological condition, is the one which is fibrosed and in which it is impossible to find any crypt into which a platinum loop could be introduced. This was one of our chief reasons for adopting the procedure outlined in our paper. It is quite possible that our needle may, occasionally, enter or traverse a crypt, but we think that this is unlikely because the needle is introduced in a direction more or less parallel to that in which the majority of the crypts run, as judged by histological appearances. The needle is not rotated until it is buried deeply in the substance of the tonsil.—We are, etc.,

JEFFREY RAMSAY.
C. M. PEARCE.

Blackburn, April 29th.

Obituary.

FRANK COLE MADDEN, C.M.G., M.D., F.R.C.S.,

Emeritus Professor of Surgery, Royal School of Medicine, Cairo; Consulting Surgeon, Kasr-el-Ainy Hospital, Cairo.

WE have to record with regret the death, at the age of 56, of Professor F. C. Madden, which occurred in tragic circumstances at Cairo on April 20th.

Frank Cole Madden was born in Melbourne in 1873, and was educated at Melbourne University, where he graduated M.B., Ch.B., with honours, in 1893. After holding appointments as senior house-surgeon and acting medical superintendent to the Melbourne Hospital, he continued his medical studies at St. Mary's Hospital, London, obtaining the diplomas of M.R.C.S., L.R.C.P. in 1896, and proceeding to the Fellowship of the Royal College of Surgeons in 1898. In the course of a distinguished career at St. Mary's Hospital he gained an exhibition in surgery and gynaecology, and the Beaney scholarship in surgery. After holding, from 1895 to 1898, posts as house-surgeon and medical superintendent to the Hospital for Sick Children, Great Ormond Street, he proceeded to Cairo, having obtained an appointment as assistant surgeon to the Kasr-el-Ainy Hospital. This was the first of the many posts Frank Cole Madden held in Cairo; he became in the course of time senior surgeon to the Kasr-el-Ainy Hospital, professor of surgery at the Royal School of Medicine, medical officer to the Victoria Deaconess Hospital and the Anglo-American Hospital, medical officer to H.E. the High Commissioner for Egypt and to the British Consulate, and medical referee to the Egyptian State Railways and the Eastern Telegraph Company. During the war he was attached to the Egyptian Expeditionary Force, and was civil surgeon in charge of various military hospitals, the Red Cross Hospital, Cairo, and at the Kasr-el-Ainy Hospital. At the time of his death he was rector of the State University, dean of the faculty of medicine, director of the Kasr-el-Ainy Hospital and of its Medical School, consulting surgeon to the Kasr-el-Ainy Hospital, and emeritus professor to the University of Cairo. In the last New Year's Honours List he was created C.M.G. in recognition of his work in organizing the International Congress of Tropical Medicine and Hygiene, held at Cairo in December, 1928. It is not unlikely that his arduous work in relation to this congress, added to the pressure of his many other duties, contributed to the breakdown that preceded his tragic end. Madden's work and personality were highly appreciated in Egypt, and his death was a shock to his friends and to the numerous students, doctors, patients, and officials with whom his work had brought him in contact. For thirty years he devoted himself to raising the standard of medical education and practice in Egypt.

Throughout his professional career Frank Cole Madden was an active member of the British Medical Association. He was made president of the Egyptian Branch from 1924 to 1925, its representative in 1926, and a member of the Egyptian Branch Council from 1926 to 1928. His special interests were tropical surgery and schistosomiasis, and his publications included *Bilharziasis* (1904), the *Surgery of Egypt* (1919), articles on schistosomiasis in Choyce's *System of Surgery* (1923) and in Byam and Archibald's *Practice of Medicine in the Tropics* (1921), and numerous papers on surgical subjects in the various medical journals. He is survived by a widow, two sons, and two daughters.

The medical profession in Limerick and the surrounding counties has been deprived by the death, on March 26th, of Dr. WILLIAM AUGUSTUS FOGERTY, a highly esteemed and learned colleague. He was in his seventy-second year, and had practised in every department of his profession in his native city for more than forty years. He received his medical education at Queen's College, Cork, graduating M.D., M.Ch., M.A.O. in 1885. Appointments held by him included honorary surgeon to Barrington's Hospital, consulting surgeon to the Lying-in Hospital, and visiting surgeon to the Limerick County Infirmary. He was a brilliant, careful, and successful operator, and in every branch of his art he was an acknowledged master. As aurist, oculist, and gynaecologist he had attained a very high standard, while his knowledge of the collateral sciences was extensive and accurate. He excelled as a botanist, and at one time held temporarily the chair of natural science in Queen's College, Cork, as it was then designated. His colleagues fully realized and appreciated as they deserved the many various qualities and attainments that combined to stamp him as a medical practitioner of the first rank. Some years ago he was mainly instrumental in the formation of a society that had for its object the bringing together of the local medical men for friendly discussion of matters affecting their common interests, and consolidating their position, especially that of the junior members; as, for instance, when their services might be required by working-men's unions for collective attendance. This secured an adequate, reasonable fee, and eliminated a possibly destructive competition; it was, moreover, most useful in obviating misunderstandings. He was a member of the British Medical Association. He also found time to devote to the duties of alderman and to serve on a conciliation board for the adjustment of disputes between capital and labour, the utmost confidence being placed by all in his judgement and impartiality. He was chairman of the Citizen's Protective Society, and of the local branch of the Rotary Club. Sometimes he would appear as a public lecturer, speaking in a masterly and most pleasing manner. His funeral was one of the largest in Limerick for many years. All classes and creeds, high and low, rich and poor (for to the poor he had given unstintingly his time and skill in the wards of Barrington's Hospital), crowded round his grave. All felt that Dr. Fogerty had brought credit to his native city and honour to his profession.

The following well-known foreign medical men have recently died: Geheimrat SATTLER, formerly professor of ophthalmology at Leipzig, aged 84; Dr. ERNST LEUTERT, emeritus professor of otology at Giessen, aged 66; Dr. PAUL ALBRECHT, a Vienna surgeon, aged 55; Dr. LOUIS PHILIPPE NORMAND, formerly president of the College of Physicians and Surgeons of Quebec, and Commander of the Order of St. Gregory the Great, aged 65; Dr. ENRICO MORSELLI, an Italian psychiatrist; Dr. LÉON BOUVERET, an eminent physician of Lyons, aged 79; Professor A. SWAEN, founder of the Anatomical Institute of Liège and member of the Royal Academy of Medicine of Belgium; and Dr. R. JOCQS, formerly president of the Société d'Ophtalmologie.

Medico-Legal.

DEATH UNDER ETHER ANAESTHESIA.

A VERDICT of "Accidental death consequent upon an excessive amount of ether being administered for a lawful purpose" was returned at an inquest held in South London on April 23rd on a 9-weeks-old child who died while undergoing a minor operation at a large general hospital. In evidence it appeared that the operation had been performed by a dresser under the supervision of a casualty officer who had qualified about four months previously, and the anaesthetic administered by an assistant casualty officer qualified about a week. There had been no undue haemorrhage, but, owing to the circumstances in which it had been performed, the time taken for the operation was rather longer than usual. After the patient had been anaesthetized for twenty-five minutes breathing stopped suddenly; oxygen and brandy were administered, artificial respiration was started at once, restoratives were injected, and hot-water bottles were placed at the patient's feet. A pathologist in evidence said that the child was perfectly healthy and that the operation was a proper one. He added that it was the usual practice in all teaching hospitals for dressers to perform simple operations under supervision. The coroner stated that an experienced anaesthetist would have noticed something wrong before respiration ceased.

DEATH FROM MERCURY POISONING.

A VERDICT of "Accidental death" was recorded on April 23rd in the case of a boy, aged 7, who had died on March 24th at Islington. At previous hearings the mother stated in evidence that the boy had been under treatment at a large general hospital for a skin rash. On March 22nd she was given a box of fourteen grey powders at the hospital, to be administered to the boy according to definite instructions; this box she gave him to carry, but before she could stop him he had swallowed two of the powders in the street. When she got home she put the powders on the mantelpiece, but since the boy's death she had been unable to find the box or the powders. Sir Bernard Spilsbury said that the prescription for the powders contained mercury, but he did not think two grey powders would seriously affect the child. Death was due to acute colitis. Dr. Lynch stated that he had found traces of mercury in the boy's organs; there was one-twelfth of a grain in the kidneys, and he thought mercury poisoning was the cause of death. There were two similar cases of death from mercury poisoning on record. Sir Bernard Spilsbury said that in view of the analyst's report, and from a further examination he had made, he concluded that death was due to syncope resulting from acute colitis brought about by mercury poisoning. In recording his verdict the coroner said that precise instructions had been given with the powders at the hospital, but the child, apparently, had taken an excessive dose.

The Services.

DIRECTOR OF MEDICAL SERVICES IN INDIA.

MAJOR-GENERAL W. H. S. NICKERSON, V.C., C.B., C.M.G., late R.A.M.C., has been selected for the appointment of Director of Medical Services in India in succession to Major-General Sir Walter H. Ogilvie, K.B.E., C.B., C.M.G., I.M.S., who will retire on September 2nd.

DEATHS IN THE SERVICES.

Major Louis Hope Lovat Mackenzie, Indian Medical Service, of Tonich, Beauly, died at Parachinar, on the North-West Frontier of India, on April 5th, aged 47. He was educated at Cambridge (Trinity College), where he graduated as M.A. with honours in 1902, B.C. in 1907, and M.B. in 1908; and at St. Thomas's Hospital, taking also the M.R.C.S. and L.R.C.P. in 1907. Entering the I.M.S. as lieutenant on July 31st, 1909, he became captain after three years' service, got a brevet majority for war service on June 3rd, 1917, and became permanent major on July 31st, 1921. He served in the recent war of 1914, and was mentioned in dispatches in the *London Gazette* of August 15th, 1917. For several years past he had been in political employ in the North-West Frontier Province.

Captain John Crawford Burns, R.A.M.C. (ret.), died at Aberdeen on February 26th, aged 34. He was born on January 15th, 1895, the second son of the late Walter Burns of Denholm Hill, Roxburgh, and was educated at Edinburgh, where he graduated as M.B. and Ch.B. in 1917, joining the Special Reserve of the R.A.M.C. as lieutenant on August 9th, 1917. He afterwards took a commission in the regular R.A.M.C. from the same date, and was promoted to captain on February 9th, 1921. He was then placed on half-pay, and transferred to the retired list last year. He served in the war of 1914-19.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on April 26th the following medical degrees were conferred:

M.D.—W. S. Hunt, A. C. Hampson, W. Brockbank, W. Smith.
M.B., B.CHIR.—J. D. R. Murray, J. G. Milner, T. D. Morgan.
M.B.—C. A. Francis, E. Clayton-Jones, E. A. E. Palmer.
B.CHIR.—E. B. Murrell.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examination indicated:

DIPLOMA IN PSYCHOLOGICAL MEDICINE (*with special knowledge of Psychiatry*).—J. Braithwaite, Catherine M. Hext.

UNIVERSITY COLLEGE.

The Faculty of Medical Sciences of University College announces that an examination for the Bucknill Scholarship (of the value of 160 guineas) and two Exhibitions (each of the value of 55 guineas) will be held in June. Full particulars and entry forms may be obtained from Mr. C. O. G. Douie, secretary, University College, Gower Street, London, W.C.1.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary comitia of the Royal College of Physicians of London was held on April 25th, when the President, Sir John Rose Bradford, was in the chair.

Fellowship.

The following were elected Fellows on the nomination of the Council:

R. W. Marsden, M.D. (Manchester), Rupert Waterhouse, M.D. (Bath), A. G. Yates, M.D. (Sheffield), K. D. Wilkinson, O.B.E., M.D. (Birmingham), T. L. Hardy, M.D. (Birmingham), Geoffrey Bourne, M.D. (London), C. T. Champion de Crespigny, D.S.O., M.D. (Adelaide), A. C. Roxburgh, M.D. (London), B. T. Parsons-Smith, M.D. (London), A. W. M. Ellis, M.D. (London), H. Gardiner-Hill, M.B.E., M.D. (London), J. H. Sheldon, M.D. (Wolverhampton), J. M. H. Campbell, O.B.E., M.D. (London), J. H. Dible, M.B. (Liverpool), D. H. Paterson, M.D. (London), J. C. Bramwell, M.D. (Manchester), A. F. Tredgold, M.D. (London), Hugh Gainsborough, M.D. (London), C. H. Kellaway, M.D. (Melbourne), A. H. Douthwaite, M.D. (London), D. Hunter, M.D. (London), H. M. Turnbull, M.D. (London), C. A. Lovatt Evans, D.Sc., F.R.S., M.R.C.S., L.R.C.P. (London).

Membership.

The following, having satisfied the Censors' Board, were elected Members:

R. S. Aitken, M.B., J. Anderson, M.D., R. W. Brookfield, M.D., W. E. Chiesman, M.B., H. A. Clegg, M.B., Gladys Mary Evans, M.D., F. R. Ferguson, M.D., W. E. Fisher, M.B., H. G. Garland, M.B., H. K. Goadby, M.B., C. A. Keele, M.B., A. J. May, M.B., M. M. Mehta, M.B., L. Minski, M.D., A. G. Ogilvie, M.B., W. E. Rees, M.D., H. M. Sein, M.B., E. W. Skipper, M.B., W. R. C. Stowe, M.B., M. M. Suzman, M.D., P. C. Varrier-Jones, L.R.C.P., W. S. Whimster, M.D., C. E. Woodrow, L.R.C.P.

Licences.

Licence to practise were granted to the following 108 candidates:

E. G. Abdel-Malek, D. A'Brook, Annie D. M. Adams, C. L. Ahluwalia, Annie F. Allport, C. Arthur, J. C. Arthur, S. Alstead, A. R. Banham, I. T. Barling, J. R. J. Beddard, D. Bielenky, H. E. Blake, M. Bloom, R. K. Bowes, A. M. Boyd, J. S. B. Bray, A. D. D. Broughton, C. W. F. Burnett, E. L. Butler, C. E. Caudwell, M. A. Chamberlain, P. P. Chandu Nambiar, Rosa O. J. Clark, J. O. Clyde, J. R. Colville, S. J. Cope, D. M. Craig, F. A. D'Abreu, A. M. D'Cotta, J. G. Dathan, H. B. J. Donald, E. S. Fossey, I. Friedman, Dorothea L. Gee, T. Giblin, A. Gilpin, Joan Goodger, H. Gordon, E. Grundy, P. N. Hanson, K. W. D. Hartley, Dorothy C. Hay, G. Herbert, J. H. Howells, D. Hugo, A. H. Hussein, A. E. Hutton, K. L. James, W. H. P. Jonas, C. Jones, Mary E. H. Jones, R. A. Jones, L. D. Khatri, H. V. Knight, R. G. Krishnan, R. J. Krogh, A. J. C. Latchmore, J. C. Lee, J. M. Leggate, F. G. Lewis, O. V. Lloyd-Davies, J. V. Lucas, H. G. McGregor, C. G. Millman, A. J. Moffett, B. A. Moss, L. P. Naz, W. L. Neustatter, J. C. Nicholson, R. J. L. O'Donoghue, J. R. Owen, E. R. G. Passe, A. S. Philps, R. K. Price, K. H. Pridie, A. B. Rao, J. B. A. Reynolds, R. A. C. Rice, N. W. Roberts, C. St. Johnston, J. G. Sandrey, R. W. Scanlon, C. P. Scott, J. D. W. Shedden, M. D. Sheppard, B. Singer, W. F. Skaife, D. B. Smallshaw, W. C. Smallwood, E. S. Stern, J. B. Sugden, L. Sumitra, N. C. Tanner, L. Taylor, K. S. Thom, R. S. Thomas, A. E. Treweek, J. J. van Niekerk, E. Vitenson, W. J. Walter, G. J. S. West, S. J. Wheeler, B. Williams, D. C. Williams, E. R. Williams, Sybil O. Williams, Kathleen Wilson.

Dr. F. E. Fremantle was appointed delegate to the fourth Imperial Social Hygiene Congress.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—B. L. Fishout, E. T. Garthwaite, E. Marks, A. N. de Monte, C. J. Poh, P. U. Rao.
MEDICINE.—B. L. Fishout, D. F. Michael, C. J. Poh, H. Whitby.
FORENSIC MEDICINE.—H. M. Feldman, H. Murkus, A. W. Tam.
MIDWIFERY.—L. Banszky, G. R. Davies, C. W. Ellison, B. C. Ghose, C. F. H. Quick, T. Singh.

The diploma of the Society has been granted to Messrs. H. M. Feldman and D. F. Michael.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

PARLIAMENT will be dissolved next week. This week the House of Commons considered the Finance Bill and departmental estimates, and both Houses were occupied with the final stages of bills previously discussed.

At the House of Commons, on April 29th, with Dr. Fremantle as chairman, Conservative members entertained Mr. Chamberlain and Sir Kingsley Wood to dinner.

Local Government (Scotland) Bill.

Third Reading in the House of Lords.

The House of Lords, on April 24th, read the Local Government (Scotland) Bill a third time after making minor amendments to it. By one of these the House, on the motion of Lord YOUNGER, restored to Clause 35, which deals with medical officers of health and sanitary inspectors, a subsection which had been deleted by inadvertence when Lord Younger had previously carried an amendment varying the operative words of the clause. The subsection which, with the approval of the Government, was restored on April 24th runs:

"Except with the sanction of the Department of Health, no person shall, after the commencement of this Act, be appointed sanitary inspector of a county or burgh unless he possesses such qualifications as may be prescribed by the Department of Health."

The bill was returned to the House of Commons, which on April 26th considered the Lords' amendments.

The Lords' Amendments in the House of Commons.

The Lords' amendments to the bill were considered by the House of Commons on April 26th. The Commons agreed to the subsection added by the Lords to Clause 5. This clause makes provision relating to the transfer of functions, and Sir JOHN GILMOUR explained that the subsection added by the Lords was designed to meet a case where a district board of control would disappear, and where its functions would be transferred to two separate county councils. The subsection authorized that the appointment of representatives should be made either by the two counties jointly or by a joint committee, or else that a certain number of appointments should be allotted to one county council and a certain number to the other. Sir John added that he thought this a good working agreement.

The Commons also agreed to an amendment made by the Lords in Clause 11, which provides for the combination of local authorities. Sir John Gilmour said the Lords' amendment was made to meet circumstances such as would occur at Paisley in consequence of the transfer of an asylum. The amendment was introduced by the Government after conference with the authorities concerned. On Clause 35, dealing with the appointments of medical officers of health and sanitary inspectors, Sir John Gilmour moved that the Commons disagreed with the amendment which, on the motion of Lord Younger, the Lords had carried. This amendment laid down that sanitary inspectors of small burghs should be succeeded on any vacancy arising after the Act coming into force *ipso facto* by the sanitary inspector of the county within which the burgh was situated. Mr. W. WATSON supported Sir John Gilmour's proposal. He said that considerable hardship would be imposed upon certain burghs if they had burgh surveyors who were not also sanitary inspectors. Mr. WESTWOOD also thanked the Government, and said many people would be glad to know that the Government had sufficient backbone to face the House of Lords. The House of Commons then disagreed with the Lords' amendment, and subsection (1) of Clause 35 reverted to its original form, in which the provision that a county official should succeed to a vacancy in a small burgh only applied to medical officers of health.

Other amendments concerning the transfer of officers and rights in superannuation funds or compensation were accepted by the Commons, and the bill was returned to the Lords with a statement of the reasons for disagreeing with the Lords' amendment on Clause 35.

Radium.

Answering Dr. Fremantle, on April 25th, Mr. CHAMBERLAIN said the British Empire Cancer Campaign was not consulted before the Government decided its action on the proposed radium appeal. The Campaign would not be asked to undertake the appeal to the public for funds. Mr. Chamberlain added that, while appreciating the work being done by the British Empire Cancer Campaign, he hesitated to accept Dr. Fremantle's estimate of it as the principal association for the promotion of cancer research. Dr. FREMANTLE asked whether Mr. Chamberlain knew that the Cancer Campaign had prepared an appeal on an extensive scale. Mr. CHAMBERLAIN replied that he understood that was for research only, whereas, according to the general opinion, the need was for more than research. Dr. FREMANTLE retorted that the subcommittee of the Committee of Civil Research had used the word "research." He asserted that the Cancer Campaign had appealed widely for radium, that they had a large stock in hand, and that they were therefore the proper body to do what was suggested by the Committee of Civil Research. Mr. CHAMBERLAIN said Dr. Fremantle was mistaken if he thought that the whole of the recommendations of the Committee dealt with research. He saw no need for giving the House of Commons an opportunity to discuss the question before an appeal was made, and added that he had every reason to suppose this appeal would be before the General Election. Answering Mr. Robert Morrison, Mr. CHAMBERLAIN said the subcommittee of the Committee of Civil Research was not in a position to secure any guarantee that 20 grams of radium bought through a single agency would be cheaper than much smaller amounts bought by numerous purchasers, but their opinion on this point, with reasons, was set out in their report.

Small-pox.

On April 25th, in an answer to Dr. Fremantle, Mr. CHAMBERLAIN said that, according to the information then available, two cases of small-pox had been notified during the past week from the *Tuscania*. No further deaths had occurred, and no case of small-pox had been reported from the *Mashobra*. Information on the vaccinal history of the fatal cases from the *Tuscania* was not then available.

Mr. LOCKER-LAMPSON told Dr. Fremantle, in a written answer on April 25th, that the regulations with which travellers proceeding from this country to France had at that date to comply provided that:

(1) All persons in possession of certificates to the effect that they had been vaccinated within the last five years and not more recently than ten days would be allowed to land without hindrance.

(2) Those without such certificates would be required to fill in a sanitary passport, giving their names and addresses and their destination, so that they might be subject to medical supervision during the next fourteen days.

(3) There would be no compulsory vaccination on disembarkation.

He understood that at Dieppe holders of certificates were also being asked to submit their arms for medical inspection. At Havre the special regulations introduced by the mayor, and announced in the press, were still being enforced. The length of time which these regulations would remain in force must necessarily depend upon circumstances.

Dr. FREMANTLE asked whether these matters would in future be arranged through the International Committee of Public Hygiene, at Paris, or through the Health Organization of the League of Nations, at Geneva. Mr. LOCKER-LAMPSON replied that, in the opinion of the British Government it was not possible to leave the details of administration in such matters to an international body. The French Government had acted in the present case in accordance with Article 42 of the International Sanitary Convention signed at Paris on June 21st, 1926.

Sir KINGSLEY WOOD told Sir Basil Peto, on April 30th, that there was no quarantine station or quarantine ship at the port of Liverpool. The measures taken at Liverpool on the arrival of the s.s. *Tuscania* were in accordance with the procedure laid down in the International Sanitary Convention of 1926. Sir BASIL PETO asked whether, in the absence of any quarantine station and ship, the crew and passengers were distributed all over the country; and whether at East Ham and West Ham 24 cases of small-pox arose from contact with a steward from the *Tuscania* who had seven or eight children attending an elementary school at Leyton Road. Sir KINGSLEY WOOD: Yes, Sir; the Minister of Health and I have answered several questions on this matter, giving an exact account of what has taken place. Obviously, the conditions which have to be complied with are those of the International Sanitary Convention, but the real lesson of the whole affair is the necessity for vaccination.

Power Stations and the Smoke Nuisance.

Colonel ASHLEY announced, on April 18th, that the Electricity Commissioners had asked the Government chemist to examine the results of the investigation by the London Power Company on the problem of eliminating sulphur fumes from smoke. He was informed that research chemists had already obtained satisfactory results in laboratory experiments. In conjunction with the Department of Scientific and Industrial Research the Government chemist would advise the First Commissioner of Works and the Electricity Commissioners on the efficacy of the measures proposed for the new power station at Battersea. Only the newer power stations in the London area were subject to the condition that there should be the best known precautions for the consumption of smoke and for preventing, so far as reasonably practicable, the evolution of oxides of sulphur.

In the House of Lords, on April 25th, Lord JESSEL called attention to "the menace to the health and amenities of London by the erection of the Battersea power station." He said the proposed site was close to Battersea Bridge. The station, if erected, would be the second biggest station in the country. It would have six chimneys, each 275 feet high. The Electricity Commissioners, in giving consent to the station, had imposed the condition that "the company shall, in the construction and use of the said generating station, take the best known precautions for the due consumption of smoke and for preventing as far as reasonably practicable the evolution of oxides of sulphur, and generally for preventing any nuisance arising from the generating station or from any operations thereat." Protests had been made, but it seemed that nobody had powers over the Electricity Commissioners. He believed that laboratory experiments had not devised any means of obviating the sulphur nuisance. At St. Pancras the nuisance from the power station was so great that the Municipal Reformers nearly lost the last election because of the disgust of the inhabitants at the fumes from the power station. In Poplar the power station caused great inconvenience, and dishes in households were filled with grit emanating from the power station. Surely the time had come when these big power stations should not be placed in the centre of large cities like London.

Lord BIRKENHEAD defended the erection of the Battersea power station.

Lord LONDONDERRY, First Commissioner of Works, said the danger which was represented to threaten the parks and public buildings of London was less important than the health of the population. The Minister of Health would not allow the scheme to go forward unless he was satisfied there was no danger in that direction. It was important that these generating stations should be in the centres where the chief loads were to be carried. If they were placed at a distance from the centres which they were destined to supply a greatly increased cost would fall on the public. Generating stations must also be close to water. The difficulties connected with smoke and grit had been overcome, and they need no longer be a nuisance to the public. All coal fires gave off sulphur fumes, and these fumes existed in all centres of population. The erection of the Battersea station would permit the elimination of three stations—at Horseferry Road, Westminster, Shepherd's Bush, and Earl's Court. The reduction of sulphur fumes by elimination of these stations and the establishment of one station was calculated at 30 per cent. In addition, the new station would reduce the consumption of coal in a great number of houses, with consequent reduction of the sulphur fumes now given off by fires. The further extension of the Battersea power station by two-thirds would not be undertaken unless the Minister of Transport, the Minister of Health, and the First Commissioner of Works were satisfied on the advice of the Government chemist and of the Scientific and Industrial Research Department that there was no danger accruing.

Lord CRAWFORD said experience in Lancashire showed that people within 300 yards of a big chimney often did not suffer so much as those who were half a mile or more from it. The limit of 300 yards which the Electricity Act imposed on complainants was a great hardship on people who lived beyond that limit, and had no *locus standi* to state their case.

Lord LONDONDERRY repeated his assurance that only one-third of the Battersea scheme was being undertaken now, and Lord JESSEL withdrew his motion.

Schools for Mental Defectives and Nursery Schools.

Lord EUSTACE PERCY, speaking on the vote for the Board of Education, in the House of Commons, on April 23rd, said that to complete the balanced scheme of education they must give a more natural and normal place in the structure to two types of school which had hitherto stood rather outside the elementary school system—the special school and the nursery school. A recent report by the committee appointed by Sir George Newman had indicated certain defects in their methods of dealing with mentally deficient children. He (Lord E. Percy) had been criticized for waiting for this report before deciding his policy in regard to schools for mental defectives, but he believed that the committee's work would enable them to make within the general educational system a more comprehensive and varied provision for the needs of such children than had been possible on the basis of a procedure of medical certification. That certification had tended to divide retarded children into two fixed and somewhat artificial categories. The nursery school presented a different problem, but was also a subject on which all needed to clarify their views by thorough investigation. He had left this problem at the stage at which he had found it—that of isolated experiments. Those experiments had not been unfruitful. They had led the Board to modify its views on certain points, such as the size of nursery schools, but the Board of Education could not be content either with the present rate of progress or with any of the proposals which had recently been put forward on this subject, and which seemed to him to amount to a little more than a multiplication of isolated experiments. The time had come when this administrative problem should be brought into the focus of a settled policy. As recently announced, the Board of Education proposed to conduct a comprehensive inquiry with this object.

Education Estimates for Scotland.

The Education Estimates for Scotland were also debated on April 23rd, and Mr. D. M. COWAN congratulated the Scottish Education Department on the fact that recently an education research committee had been set up in Scotland. That committee included representatives of the medical profession. This enthusiastic body was devoting itself to the study of the child mind. The object of the committee would be not only to provide a good educational course for the normal child, but to find out how the backward child could be specially dealt with.

Mr. JOHNSTON said that in the report of the Scottish Education Department it was admitted that the nutrition of over 6 per cent. of the school children examined by the school medical officers was below the average. Within the last ten years things had gone back in this respect. Medical inspection of school children was very briefly dealt with in the report of the Scottish Education Department. The annual report of the Scottish Board of Health showed that 73 per cent. of the children attending schools suffered from defective teeth. The dental services were inadequate. Then there was rickets—a poverty disease; and defective eyesight, which amounted to 5 per cent. and was still growing. Some of the schools were designed and built many years ago, and a large amount of the children's troubles arose directly from bad heating arrangements and bad ventilation.

Dr. ELLIOT said that the school accommodation in Scotland had been considerably enlarged in the last few years. It was obviously a mistake to mix up sound with sick school children, and defective children with normal children. There was every reason to believe that with the unification of the activities of the local authorities it would not be necessary to overcrowd educational institutions with school clinics, while, a street or two away, or it might be only across the street, there were facilities for carrying out these examinations in buildings designed for the purpose, where the work could be done without trenching on the premises available for the teachers for carrying out the main purposes of the school.

The break between the school health services and those of the local authority was a flaw in their educational system which the Local Government Bill would remove. He would report to the Secretary of State for Scotland that the House considered greater attention should be paid to the physical condition of school children. The debate on the vote was adjourned.

Bills.

On April 25th a Standing Committee of the House of Commons, which included Dr. Fremantle, passed the Preservation of Infant Life Bill through the committee stage with a verbal amendment, and altered the title to the Infant Life Preservation Bill. The bill has already passed the House of Lords.

The Royal Assent was given on April 25th to the Army and Air Force (Annual) Act.

In the House of Lords, on April 30th, Lord DESBOROUGH moved the second reading of the Pharmacy Bill. He said the bill was designed to secure reciprocity in regard to qualified pharmacists between Great Britain and Northern Ireland. The bill was read a second time.

Insurance Medical Service.—Mr. CHAMBERLAIN told Mr. Thurtle, on April 25th, that he had seen reports of an inquest recently on the death of a Shoreditch man at which the coroner had spoken of the inadequacy of the home treatment of this patient and of insured patients in general. Mr. Chamberlain said he did not think the case afforded sufficient reason for a general inquiry into the home treatment given to insured persons. There were very few complaints about this treatment. Insurance practitioners were required by their terms of service to visit and treat patients whose condition so required at any place within the districts in which the practitioners had undertaken to visit patients. Any complaint that a practitioner had failed to visit a patient when necessary should be made in the first instance to the local Insurance Committee, who must have it investigated.

Deaths in England and Wales for the First Quarter of 1929.—Sir KINGSLEY WOOD informed Mr. Malone, on April 23rd, that the returns issued by the Registrar-General showed that in the first quarter of this year the deaths in 107 great towns in England and Wales exceeded the births by 25,108. The deaths numbered 111,003, influenza being certified as one of the causes of death in 12,711 cases. No similar figures were yet available for the country as a whole. The Medical Research Council were promoting researches into the group of diseases to which influenza was believed to belong.

Smuggling of Drugs.—On April 16th Sir V. HENDERSON, replying to Sir R. Thomas, said that the Home Office had no information indicating that drugs were being smuggled into this country on a large scale through the ports of Cardiff and Swansea.

Refuse Dumps.—The public cleansing inspector of the Ministry of Health has inspected refuse tips at Little Britain and Iver, and the Minister of Health has appointed a departmental committee to consider his report and to recommend what measures should be taken on it. In the meantime, the Minister is making further inquiries at Iver, where he understands a new tip has been started.

Notes in Brief.

Pending receipt of a report from the Committee of Inquiry, the Minister of Agriculture is unable to reach a decision on the future of the Royal Veterinary College. The committee is still taking evidence.

Sir W. Joynson-Hicks informed the House that in the year 1928 coroners' verdicts in England and Wales found that 3,381 males and 1,464 females had committed suicide. He would endeavour to ascertain how many of these committed suicide by gas.

Medical News.

KING EDWARD'S Hospital Fund for London has sustained a severe loss in the death of Lord Revelstoke, who in 1908 was appointed as one of the first members of the newly formed Finance Committee. In 1915 he succeeded the late Lord Rothschild as Treasurer and Chairman of the Committee. Lord Revelstoke devoted unremitting attention to the financial welfare of the Fund, and to the maintenance of its stability. On April 30th it was announced that he had bequeathed the munificent sum of £100,000 to the Fund.

THE Sir George Birdwood Memorial Lecture will be given at the House of the Royal Society of Arts, John Street, Adelphi, W.C., on Friday, May 10th, at 4.30 p.m., by Mr. P. Johnston-Saint, M.A., F.R.S.E., secretary of the Wellcome Historical Medical Museum. The subject of this year's lecture is "An outline of the history of medicine in India," and Sir E. Denison Ross will preside.

A SERIES of dances is being arranged by different London hospitals in aid of the Royal Medical Benevolent Fund Guild, in the Hall of the British Medical Association House, Tavistock Square, W.C.1. The first of these, organized by Guy's Hospital, will be held on Thursday, May 16th, from 8.30 p.m. to 12.30 a.m. Tickets, 6s. each, or 11s. for two, which include light refreshments, may be obtained from Mrs. Hale-White, 1, Portland Mansions, W.1; Miss V. S. Fripp, 19, Portland Place, W.1; or Mr. Winston, Medical School Office, Guy's Hospital, S.E.

TWO lectures on the physiology of glycogen will be given at the London Hospital Medical College, Mile End, E., by Dr. J. J. R. Macleod, F.R.S., regius professor of physiology in the University of Aberdeen, on May 16th and 17th, at 5.30 p.m. The first lecture will deal with the absorption of sugar, the glycogen of the liver, and the glycogen of the muscles, and the second lecture with the significance of sugar tolerance curves and the role of insulin and other hormones in the control of carbohydrate metabolism. Professor Leonard Hill, F.R.S., will take the chair at the first lecture. Admission is free.

AT a sessional meeting of the Royal Sanitary Institute to be held on May 17th and 18th, in the Town Hall, Devizes, discussions will take place on the Milk and Dairies Order, 1926; on meat inspection; and on some aspects of local government on air, water, and sewerage.

A CLINICAL meeting will be held at the East London Hospital for Children, Shadwell, on Wednesday next, May 8th, at 4 p.m., when a short discussion on the significance of otitis media in influenza will be held, followed by a demonstration of cases of interest. All practitioners are cordially invited.

AN open meeting of the London Association of the Medical Women's Federation will be held in the Hastings Hall, British Medical Association House, Tavistock Square, W.C.1, to-day (Friday, May 3rd) at 8.30 p.m. A report of the Cancer Research Committee of the Marie Curie Hospital on three years' work on the treatment of cancer of the uterus with radium will be presented, with demonstrations of technique and cases.

THE eighty-first half-yearly dinner of the Aberdeen University Club, London, will be held at the Trocadero Restaurant on Thursday, May 16th. The secretary's address is 9, Addison Gardens, W.14.

THE Fellowship of Medicine announces that the special course of instruction for the July M.R.C.P. examination will begin on May 7th, when Dr. B. T. Parsons-Smith will deliver a lecture on the assessment of valvular heart disease; this will be followed on Friday, May 10th, by his second lecture, entitled "The treatment of cardiac failure." These lectures will be given at the Medical Society lecture room, 11, Chandos Street, on Tuesdays and Fridays at 8.30 p.m. for eight consecutive weeks. On May 6th a course in venereal disease will start at the London Lock Hospital, Dean Street, occupying each afternoon for one month and consisting of clinical instruction. A series of four lecture-demonstrations on ante-natal treatment will be given by Professor Dame Louise McIlroy on successive Fridays from May 17th to June 7th (both dates inclusive) at 5 p.m. at the Royal Free Hospital. From May 27th to June 8th a course in diseases of infants will be held at the Infants Hospital, Vincent Square, occupying each afternoon. Free demonstrations will be given during the week: on May 8th, at 2.30 p.m., in the children's out-patient department at King's College Hospital, by Dr. Wilfrid Sheldon, and on May 10th, at 2 p.m., at the Cancer Hospital by Mr. A. Lawrence Abel. Copies of all syllabuses, tickets of admission, copies of the *Post-Graduate Medical Journal* (issued monthly), and particulars of the general course of work provided by the Fellowship, may be obtained from the secretary, 1, Wimpole Street, W.1.

THE final programme has now been issued for the congress of the Royal Institute of Public Health, to be held at Zürich from May 15th to 20th. Copies may be obtained from the honorary secretary of the Institute, 37, Russell Square, W.C.1.

DR. WALTER E. MASTERS and Dr. Leonard P. Lockhart have been called to the bar by the Middle Temple and Gray's Inn respectively.

AN anonymous donor has given £2,000 for the purchase of radium for the treatment of cancer at the Royal Victoria Infirmary, Newcastle-upon-Tyne.

THE National Baby Week Council draws attention to the fact that it supplies, free of charge, a leaflet on vaccination addressed to parents. Application should be made to the office of the Council, 117, Piccadilly, London, W.1.

THE April issue of the *Archives of Surgery* is a special number in honour of the sixtieth birthday of Professor Harvey Cushing, C.B. All the articles are contributed by former pupils, and cover a wide range of surgical and anatomical subjects.

AT the fourth congress of the German society for combating rheumatism, held at Wiesbaden on April 5th and 6th, a committee was appointed to collect statistics of the incidence of rheumatic diseases.

THE medical tour organized annually by the Italian State Tourist Department to spas and other health resorts in Italy will be made this year from September 10th to 26th, and the party will be accompanied as in previous years by an English-speaking Italian medical practitioner. Each of those participating is allowed to bring one relative. Special train facilities are available and there is no night travel. A programme of receptions, local sightseeing, and entertainments is being arranged. Among the spas to be visited are: Merano, Carezza (Karersee), and other Dolomite resorts; Riva and Gardone on Lake Garda; Montecatini, and Viareggio. Detailed information can be obtained from the Italian Travel Bureau, 16, Waterloo Place, Regent Street, S.W.1.

ON the occasion of the celebration of the seventh centenary of the foundation of the University of Toulouse, a medical congress will be held on June 8th, when addresses will be given by Professor Bordet of Brussels and Professor Gley and Inspector-General Toubert of Paris.

THE Luigi Devoto Foundation of Milan has offered a prize of 10,000 lire for the best work on industrial pathology.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

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The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

RADIUM IN ARTHRITIS.

DR. F. WILLIAM COCK (Appledore, Ashford, Kent) writes: Can any of your readers inform me if there is information to be obtained of the use of radium for rheumatoid arthritis with somewhat rapid formation of bone in and about the hip-joint?

TREATMENT OF PERICARDITIS.

"B." writes to ask for advice in the treatment of a case of pericarditis of long standing in an elderly but very active man.

NEO-NATAL INTRACRANIAL HAEMORRHAGE.

"M. D." asks whether any reader has noticed intracranial haemorrhage in the newborn child as a sequel to strong pressure applied to the fundus in order to expedite delivery in delay in the second stage of an otherwise normal confinement. He has used this procedure in a considerable number of cases. The full weight of the body was brought to bear through the two palms, and undoubtedly delivery was hastened and the use of forceps avoided in many cases. Three infants, however, showed signs of cerebral damage. One had convulsions, starting six weeks after birth, and continuing occasionally for some months. This child is now mentally deficient. Another had convulsions starting when four months old and lasting for five months. This child also is mentally deficient. The third child showed signs of slow mental development, had pneumonia when 1 year old, and died of meningitis. "M. D." thinks that there may be a connexion between the pressure and the abnormal brains. He has given up pressure entirely, and now uses forceps much more frequently. He believes that this procedure is probably much safer than pressure or unduly long delay.

AXILLARY HYPERIDROSIS.

DR. CATHERINE EVANS (Herne Bay) writes in answer to "D. G.": I have found small doses of *x* rays to be the most efficacious treatment. Eight or ten applications are usually enough, given at weekly intervals.

DR. BLANCHE A. M. HENDERSON (West Hartlepool) writes: "D. G." might find the following helpful. Axillary hyperidrosis is aggravated by constipation, and in women at certain times. It is also made worse by too much clothing; this should be loose, light, and frequently changed. Two outfits should be worn, on alternate days, no garment being worn on two consecutive days. For washing a hot soapy lather should be used, with household ammonia added; both feet and axillae should be washed as frequently as possible. Exposure of the whole skin to sun and air will help. Diet should be plain and light, with plenty of fruit and fresh vegetables. A hot bath at night is to be recommended and a hairwash every week or ten days. The underwear should not be of wool but cotton, which can be boiled.

INCOME TAX.

Purchase of House and Microscope.

"C. F. E." has recently purchased his house for £2,000; it is assessed to income tax Schedule A at £62 10s., and he borrowed £700 of the purchase price at 5½ per cent. What can he now deduct in respect of the house, and, also, of a microscope bought (not by way of replacement) for £70?

*** The only deduction he can make in respect of the house is the proportion—one-half or two-thirds—of the £62 10s. on which he pays the rental tax. No allowance is due for the microscope, unless he can persuade the local income tax authorities to regard it as an item of "plant and machinery" rather than as falling into the category of loose tools.

Renewal of Car.

"E. E. H." inquires whether he can claim for renewal of car on April 4th, 1928, although he was not liable for assessment for the year 1927–28.

*** The cost of renewing a car can be treated as an expense of the year in which it was incurred. If "E. E. H." makes up his accounts to December 31st or March 31st then the transaction on April 4th cannot affect his liability for 1928–29, but it may be otherwise if he makes his accounts up for the year ending April 5th each year. It is immaterial that he was not liable to assessment for 1927–28, provided that the wearing out of the car has been caused by his work as carried on in 1928–29.

Appointment: Car Depreciation.

"A. P." bought a car in April, 1925, for £225 and used it in connexion with work for which he received a salary and a mileage allowance adequate to cover running costs and depreciation. In April, 1927, he transferred to another authority, and then received a smaller mileage allowance and was granted a depreciation allowance for income tax purposes—£22 for 1927–28 and £18 for 1928–29. In March, 1929, he sold the car for £52 and bought a new car for £203. What can he claim for obsolescence?

*** He used the car for four years, in the first two of which the depreciation was covered by a non-assessable allowance, and consequently is entitled, in our view, to one-half of the full obsolescence allowance—that is, ½ (£225 − £22 − £18 − £51) = ½ (£225 − £91) = ½ £134 = £67.

Depreciation of Car.

"F. W." bought a car in 1928 for £196; he had previously hired a car as occasion required. What depreciation allowance should he claim for 1929–30?

*** 15 per cent.—or if the local revenue authority agrees, 20 per cent.—of £196 will be the appropriate allowance for 1929–30. For the following year it will be the same percentage of £196 less the amount of the 1929–30 allowance, and so on, the allowance growing less each year.

Depreciation of Motor Cycle.

"N. D. M." bought a motor bicycle in 1920 or 1921 for £110; it was used for a year, and was then put away until 1928, when it was brought into use by his assistant. Can he claim depreciation on this cycle?

*** Yes. The amount of the allowance will be small, because it must be calculated on the basis of annual writing down by, say, 15 or 20 per cent., but it is as well to claim the allowance and to make a point of putting in the (more remunerative) obsolescence allowance when the cycle is replaced—for example, by a small car or another cycle.

LETTERS, NOTES, ETC.

CANE SUGAR IN THERAPEUTICS.

DR. C. G. S. BARONSFEATHER (Bournemouth) writes: For some ten years I have been studying the effect of cane sugar on lung diseases, more especially tuberculosis and "weak chests" in children. I was led to prescribe it frequently, with the best results. The late Dr. Arthur Goulston in his book, *Cane Sugar and Heart Disease*, points out the great value of this simple remedy in cases of weakness of the heart muscle. A sentence in which he sums his conclusions runs as follows: "It is obvious how urgent it is that something be done to lessen the alarming death rate from diseases of the circulatory system. . . . After careful thought I hazard the opinion that in the matter of diet, if more sugar derived from the sugar cane and less sugar derived from beetroot were consumed, we should soon find a satisfactory means of prophylaxis." It would seem that in pure Demerara cane sugar we have a valuable and cheap treatment for diseases of the heart and lungs, ailments which form a large proportion of the chronic troubles of the poor. If the Ministry of Health would issue a short printed form to panel doctors, suitable for handing to their panel patients, recommending them to take 3 oz. of cane sugar in hot water daily I think it would go far to settle the grave problem presented by the ever-increasing drug bill. Several simple formulae might be printed on the paper, and once the patient had formed the sugar habit he would not trouble the doctor much more, as I know from experience.

THE TRIANGULAR BANDAGE.

MISS M. L. SPACKMAN (Clitheroe, Lancs) writes: In further reply to "Inquirer" (New Zealand), the triangular bandage used in "first aid" is named after Johannes Friedrich August von Esmarch, the German military surgeon, who was the pioneer of first-aid teaching in Germany, imitating, in 1881, the English St. John Ambulance classes. He wrote a manual, *First Aid to the Injured*, which is based on his lectures, and has been translated into twenty-three languages.

TYPHUS FEVER IN EUROPE.

DURING the war typhus fever appeared first in those countries in which it was endemic, being favoured by famine, overcrowding, and poverty; it was then conveyed by troops, prisoners, and refugees into countries previously healthy. With the termination of the war and the progressive re-establishment of better economic conditions, the disease gradually returned to its former endemic state. J. Laussel has studied the incidence of typhus in Europe since 1914, and has embodied his conclusions in a thesis (*Thèse de Paris*, 1928, No. 427). He states that the incidence of typhus fever in the Balkans, and especially Rumania, is greater now than before the war, and that that country, with Poland and Russia, shows the highest incidence of this infection, though the Russian pandemic—due to the revolution—subsided as the condition of the country improved. Owing to the enforcement of sanitary measures, France remained free from typhus throughout the war, in spite of the arrival of soldiers from the East, the large number of prisoners, and the conditions of life in the trenches. The only epidemic which occurred after the war was at Marseilles in 1919, and here it was confined to the prisons. The outbreak—which was of external origin—was only rendered possible by the fact that the first cases were not recognized; it was soon stamped out by sanitary measures. Laussel adds that the identity with typhus of the recent outbreaks of exanthematous fever on the Mediterranean coast has not yet been established.

PRICE OF INSULIN.

THE British Drug Houses Ltd. and Allen and Hanburys Ltd. announce that the price of "A.B." insulin is to be reduced from 2s. 8d. to 2s., as from May 10th.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 50, 51, 52, 53, 56, 57, and 58 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 54 and 55.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 183.

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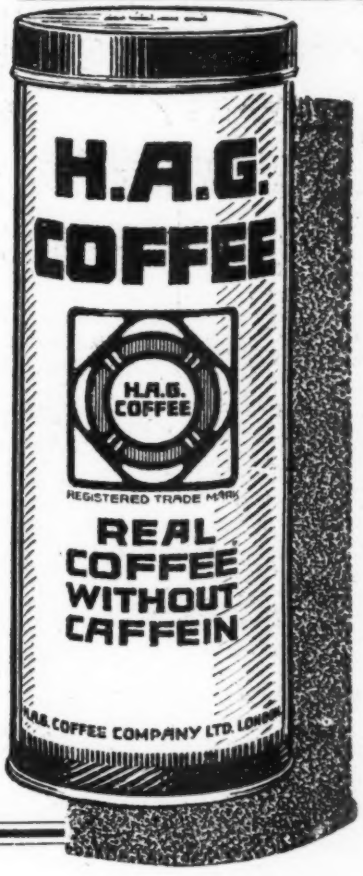

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